

V456
December 2006
Revision 1



Isysnet Demo Case Manual

[illegible]

EtherNet/IP Network Setup for Isysnet Demo Case

Step 0: Required Software

1. RSLinx is used to setup driver
2. BootP/DHCP is used to assign fixed IP address
3. RSNetworx is used to configure EtherNet/IP networks (optional)
4. RSLogix 5000 is used to create PLC program for RALogix controllers
 - For RSLogix 5000 v15, you can select Parker profiles directly
 - For RSLogix 5000 v13, you will have to select the Rockwell Automation equivalent 1738 ArmorPoint profiles. You will have to choose “*Compatible Module*” for the “*Electronic Keying*” setting.

Step 1: Assign IP Address

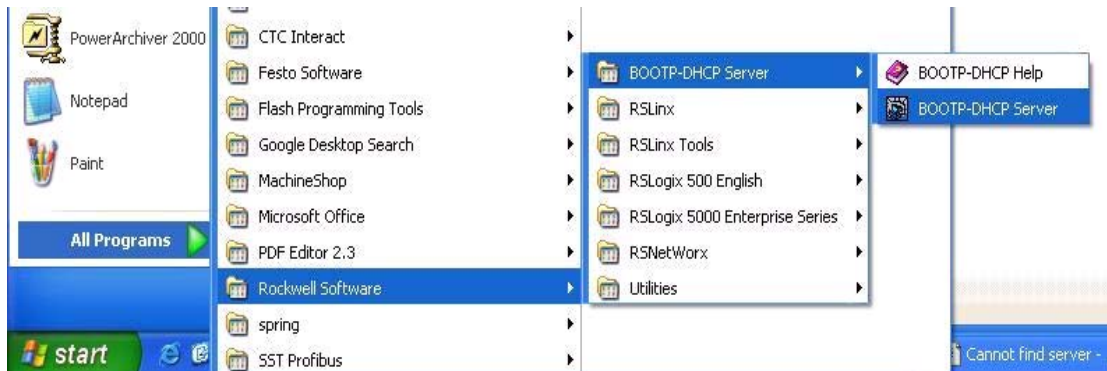
- Set IP address to EtherNet/IP Adapter(PSSCENA) using *BootP/DHCP* utility
- PSSCENA Rotary Switch settings:
 - 0, 255~999 → Invalid (factory setting 999)
 - 1~254 → Valid
 - 888 → Reset Port Configuration

Step 1: Assign IP Address (cont'd)

1. Out of the box, the adapter has a setting of 999.
2. Connect the adapter to EtherNet switch through an EtherNet cable, the adapter should remain UNPOWERED.
3. The switch is disconnected from company network.
4. Connect computer and the PLC EtherNet port (this has been assigned an IP address previously) to the EtherNet switch through EtherNet cables.
5. Power on PLC, the EtherNet switch and the computer.

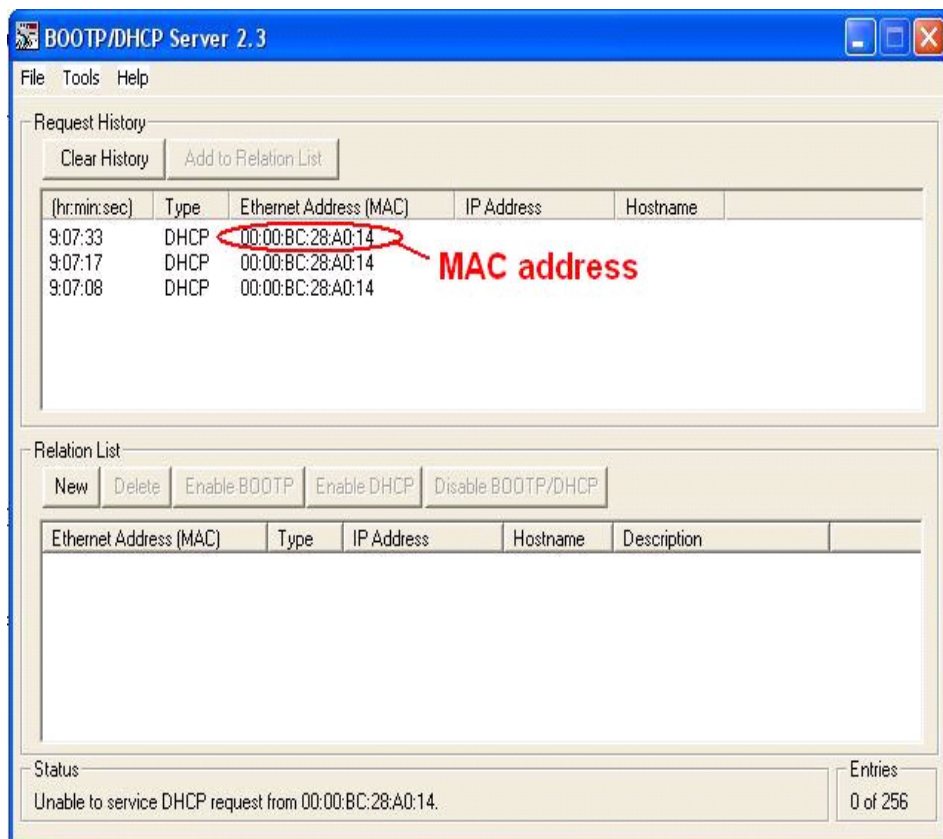
Step 1: Assign IP Address (cont'd)

6. Launch the BootP/DHCP Server utility from the computer



Step 1: Assign IP Address (cont'd)

7. And you will see this:

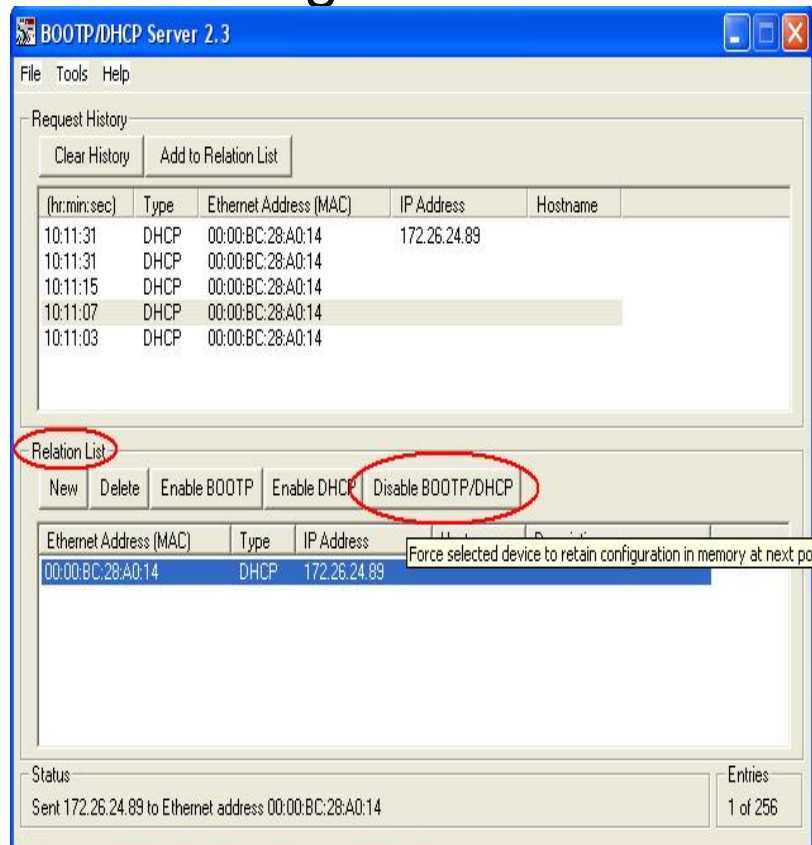


Step 1: Assign IP Address (cont'd)

8. Double click on one of the requests and enter the IP address you wish to assign and click *OK*.
9. WAIT UNTIL YOU SEE IN THE REQUEST HISTORY A REQUEST WITH BOTH THE MAC ADDRESS AND IP ADDRESS. This indicates that the server utility has assigned the desired IP address to the adapter.

Step 1: Assign IP Address (cont'd)

10. Highlight by clicking on the entry for the adapter in the *relation list* pane, then click on the *Disable BootP/DHCP* button. Now the adapter should store the IP address, subnet mask, etc. as well as disable DHCP for future power cycles. See figure below.



Step 1: Assign IP Address (cont'd)

11. If later on you want change adapter's IP address, power off the adapter, set switch to 888 then repeat 2~11. Once IP address is stored in adapter, power off the adapter and change switch setting to an invalid number other than 888. Power on adapter, then it is ready for use.

Step 2: Create An RSLogix 5000 File

1. Open RSLogix 5000 (Rev. 15) and create a new file by selecting *File, New* to bring up the screen below. Select the controller *type* you are using, the *revision* of your RSLogix software and create a file *name*. Click *OK*.

The screenshot shows the 'New Controller' dialog box with the following fields and values:

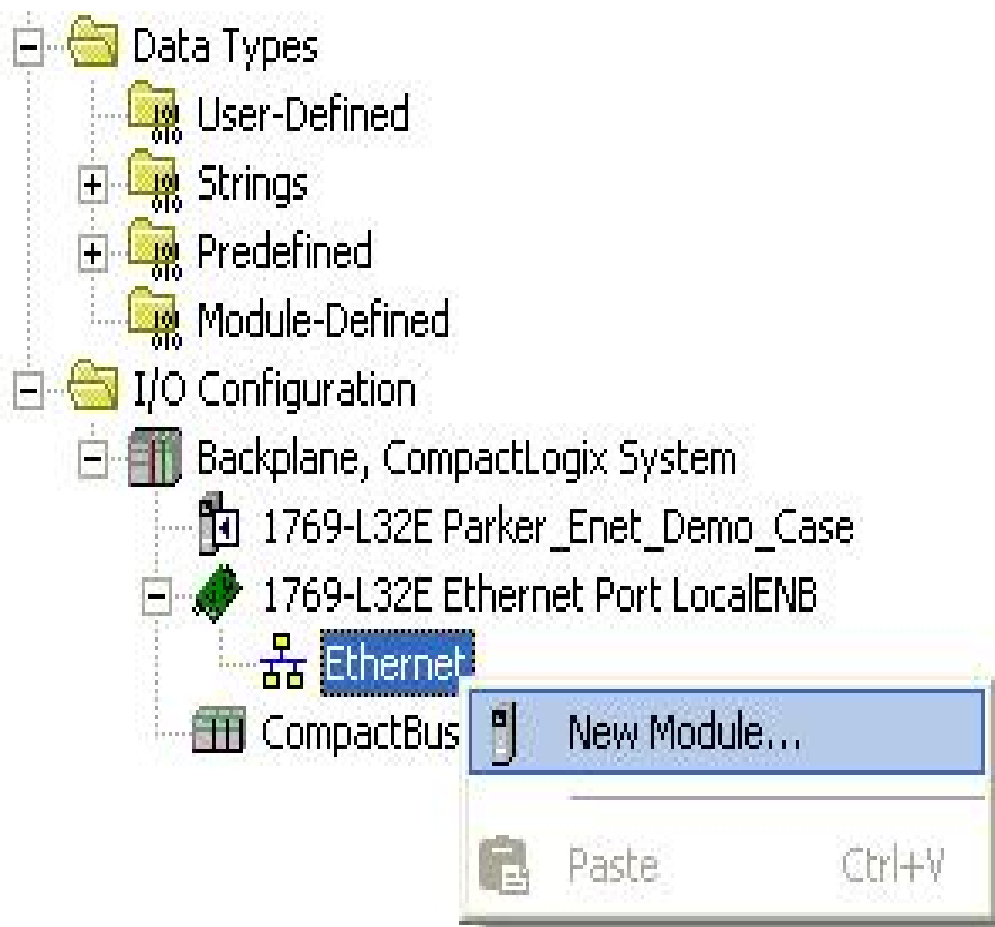
- Vendor: Allen-Bradley
- Type: 1769-L32E CompactLogix5332E Controller
- Revision: 15
- Name: Parker_Enet_Demo_Case
- Description: (empty text box)
- Chassis Type: <none>
- Slot: 0
- Create In: U:\YQ33859\serial\programs

Buttons: OK, Cancel, Help, Browse...

Step 2: Create An RSLogix 5000 File (cont'd)

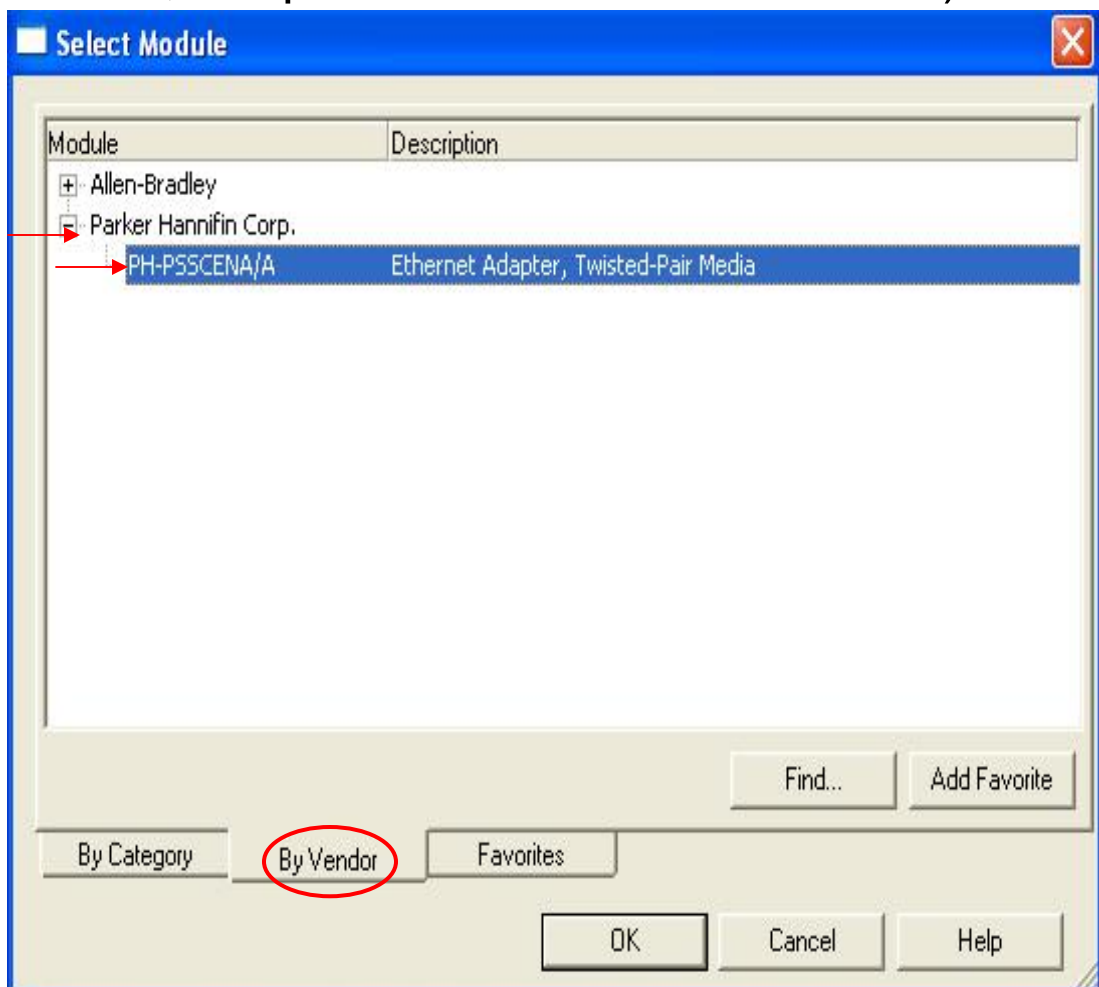
2. Staying in RSLogix, right click on Ethernet line and select

New Module:



Step 2: Create An RSLogix 5000 File (cont'd)

3. Make sure you have selected the *By Vendor* tab at the bottom. Select *Parker Hannifin Corp* and double click the appropriate part number of your component in the new window. (In this case, the part number is PSSCENA/A)



Step 2: Create An RSLogix 5000 File (cont'd)

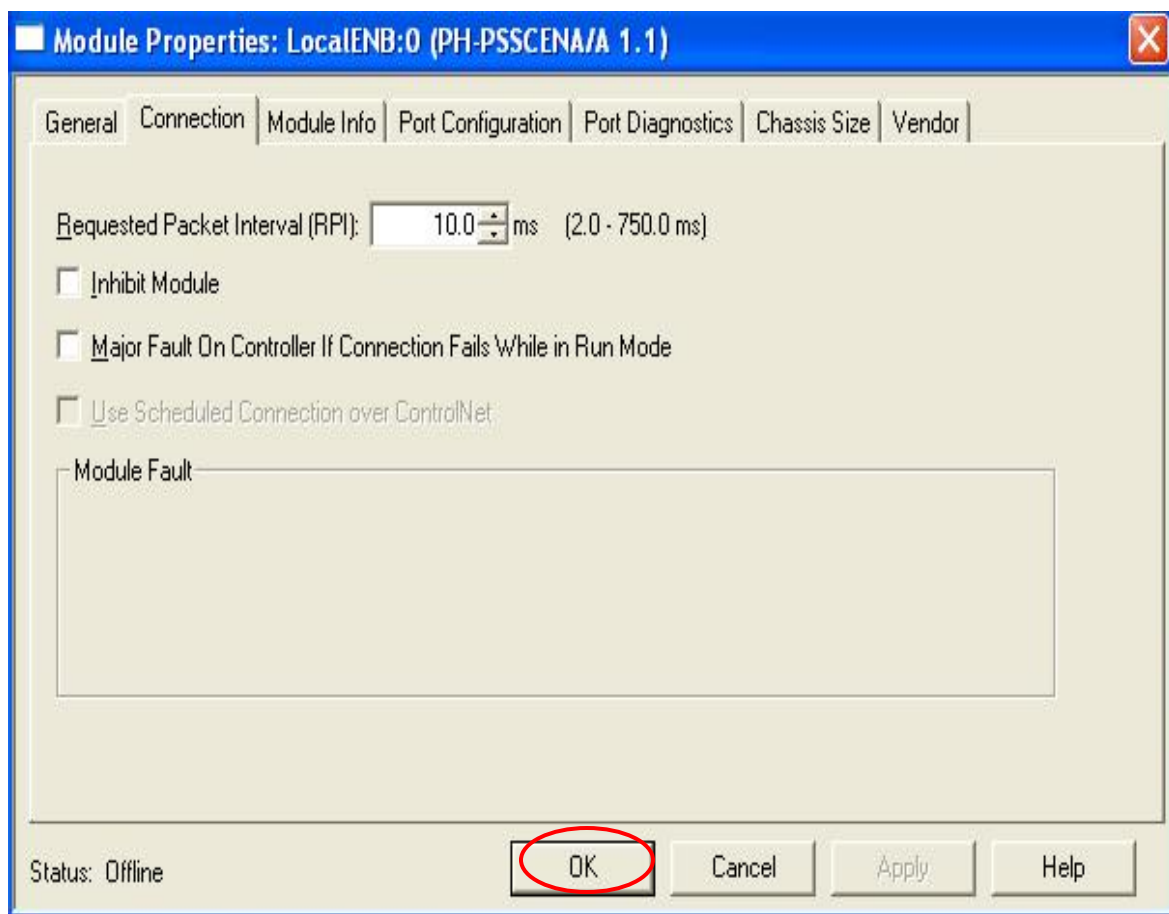
4. Enter the *name*, *IP address* and *chassis size*. Click *OK*. The IP address and chassis size need to be the same as the Demo Case.

The screenshot shows the 'New Module' dialog box with the following details:

- Title Bar:** New Module
- Type:** PH-PSSCENA/A Ethernet Adapter, Twisted-Pair Media
- Vendor:** Parker Hannifin Corp.
- Parent:** LocalENB
- Name:** Enet_Adapter
- Description:** (Empty text box)
- Comm Format:** Rack Optimization
- Slot:** 0
- Chassis Size:** 4
- Revision:** 1
- Address / Host Name:**
 - ☒ IP Address: 192 . 168 . 1 . 10
 - ☐ Host Name: (Empty text box)
- Electronic Keying:** Compatible Keying
- Buttons:** OK, Cancel, Help
- Checkboxes:** ☒ Open Module Properties

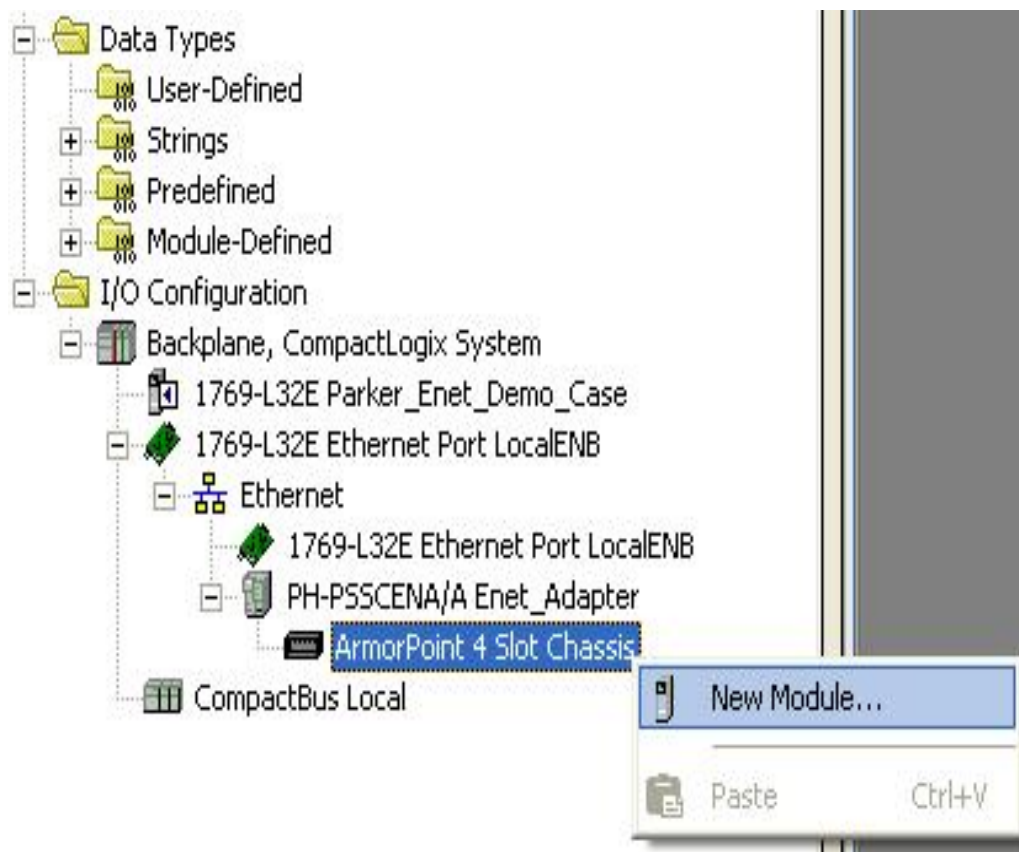
Step 2: Create An RSLogix 5000 File (cont'd)

5. You can use the default values in Module Properties window and click **OK**.



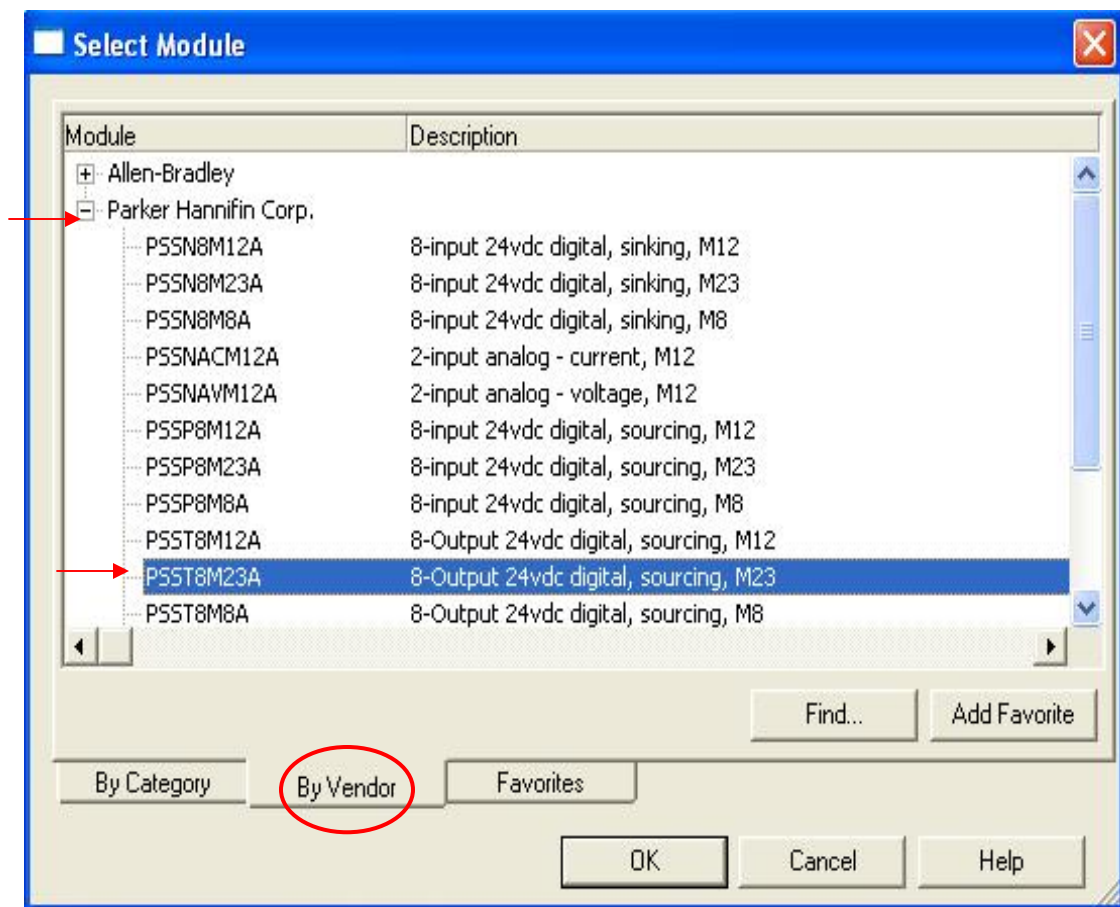
Step 2: Create An RSLogix 5000 File (cont'd)

6. The ArmorPoint 4 Slot Chassis line should appear in the directory tree on the left. Right click on this line and select *New Module*. This line will allow you to set up your I/O modules and the valve driver for the isysnet demo.



Step 2: Create An RSLogix 5000 File (cont'd)

7. Make sure that you have the *By Vendor* tab selected. Select *Parker Hannifin Corp.* and find the appropriate part number for the output module and double click it.



Step 2: Create An RSLogix 5000 File (cont'd)

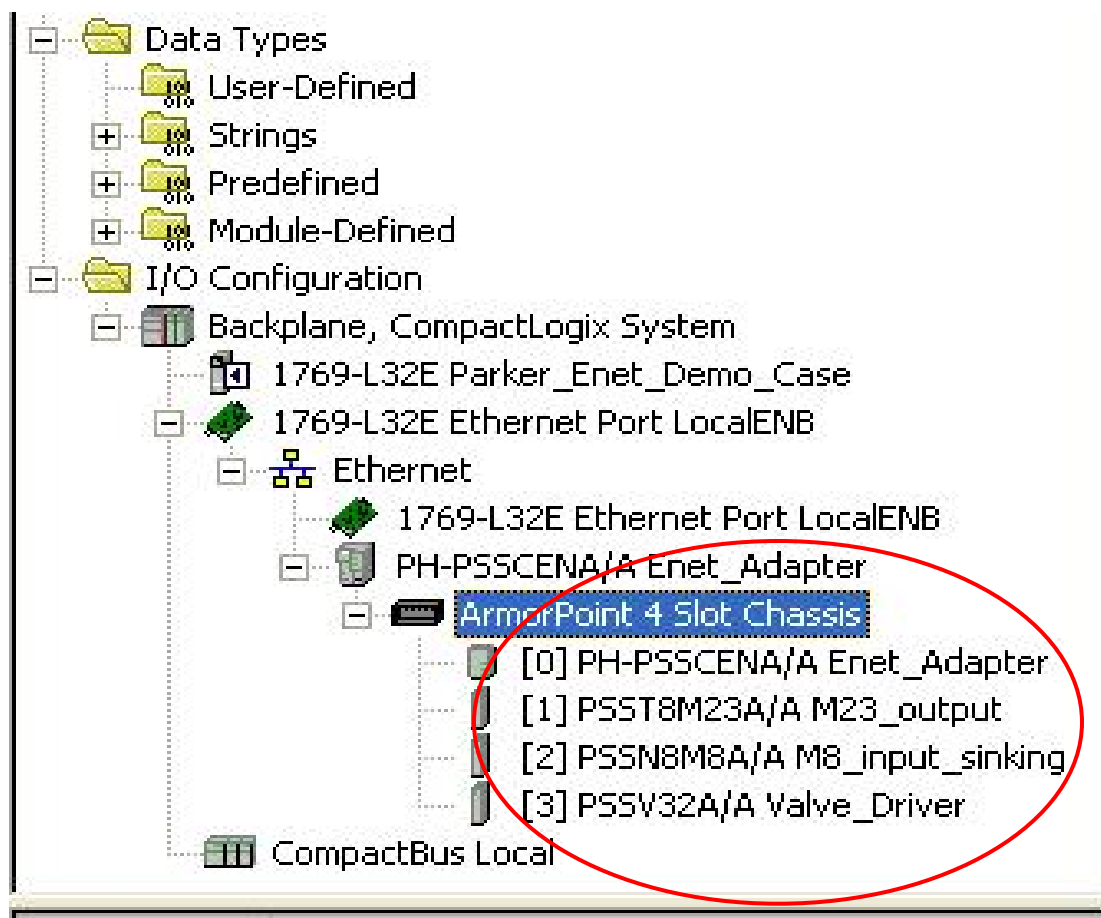
8. Create the *name* and select the *slot* for your module. Click *OK*.

The screenshot shows the 'New Module' dialog box with the following details:

- General Tab:**
 - Type: PSST8M23A 8-Output 24vdc digital, sourcing, M23
 - Vendor: Parker Hannifin Corp.
 - Parent: Enet Adapter
 - Name: M23 output (circled in red)
 - Slot: 1 (circled in red)
 - Description: (empty text box)
- Module Definition:**
 - Series: A (with 'Change ...' button)
 - Revision: 3.1
 - Electronic Keying: Compatible Module
 - Connection: Rack Optimization
 - Data Format: Integer
- Status:** Creating
- Buttons:** OK (circled in red), Cancel, Help

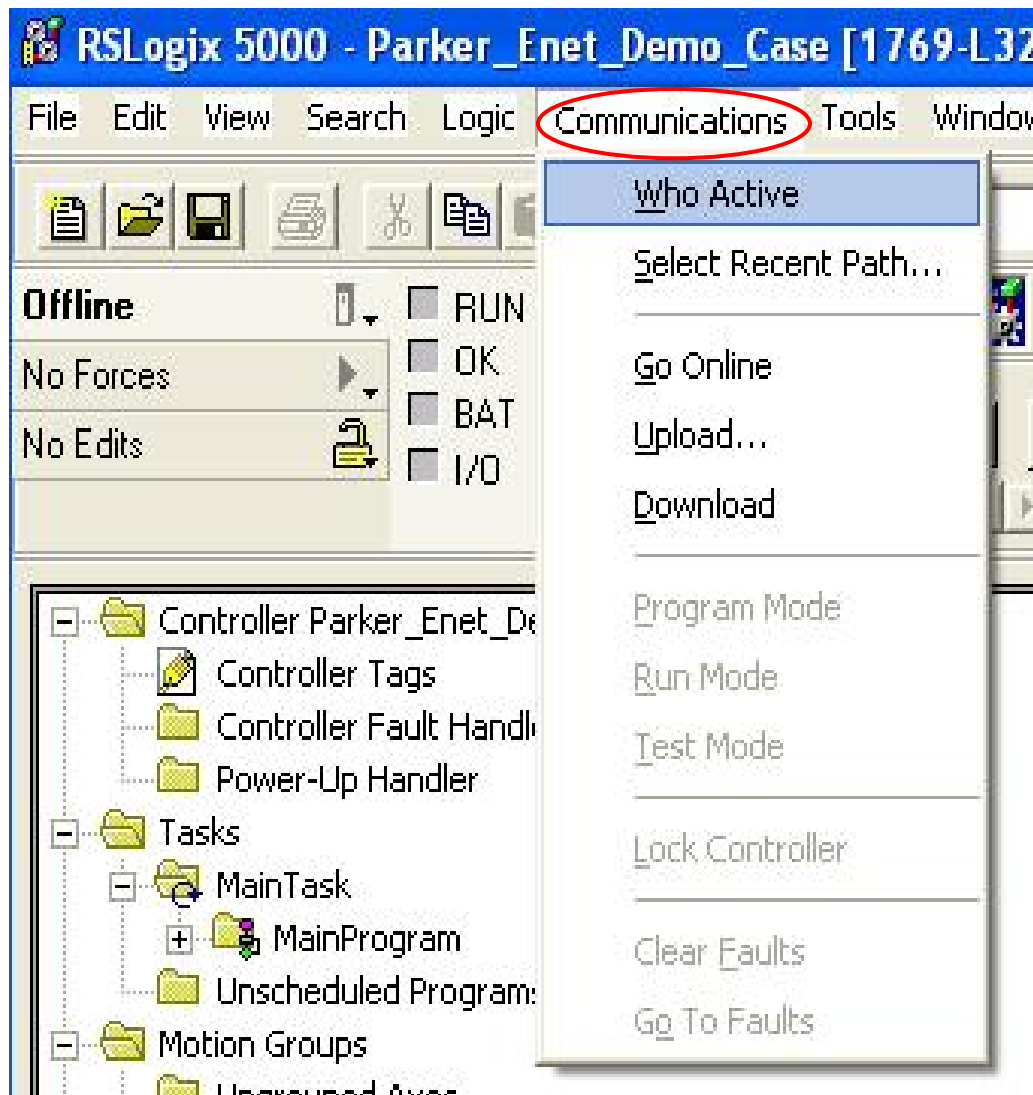
Step 2: Create An RSLogix 5000 File (cont'd)

9. Repeat steps 6 through 8 for the other I/O modules and Valve Driver. Once you have properly completed this process, your window should appear like this:



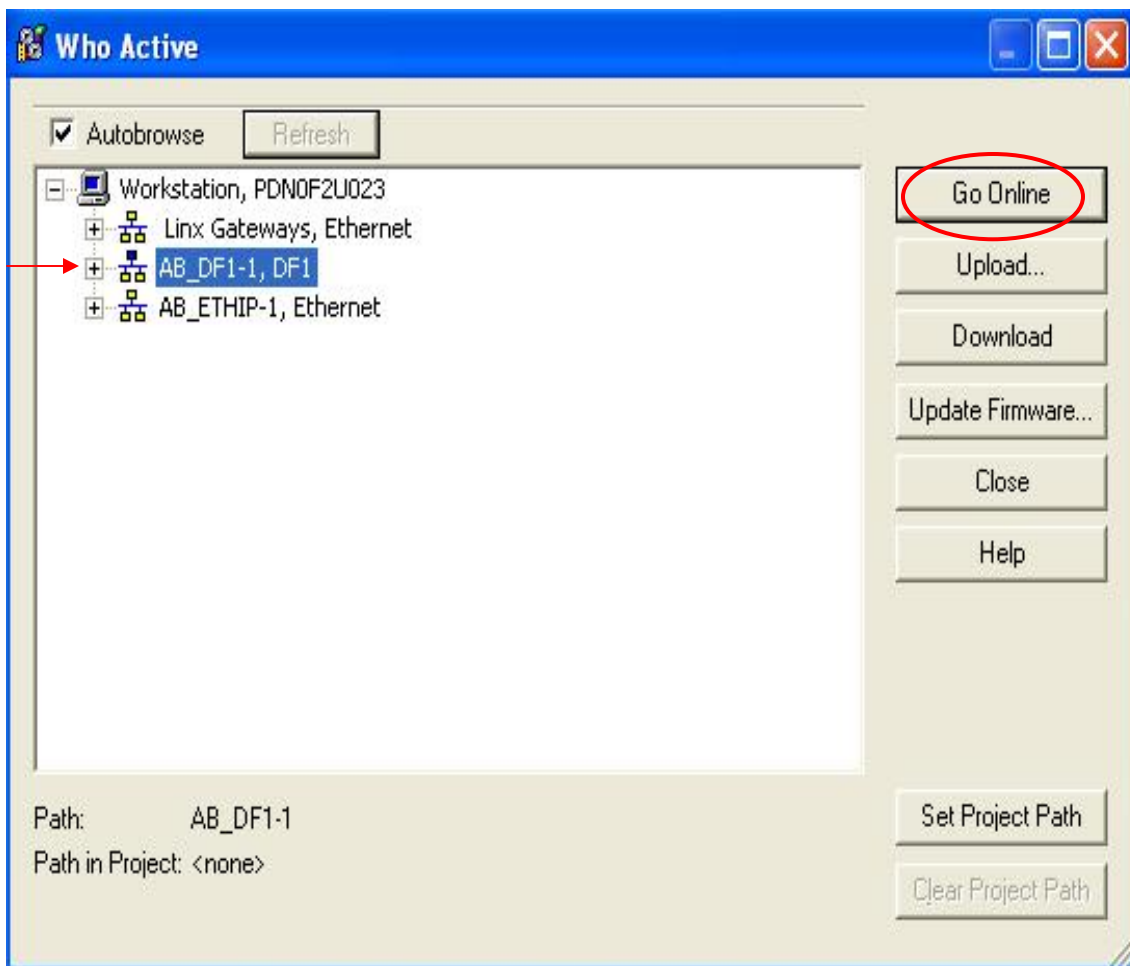
Step 3: Establishing Communications

1. To confirm your communication within your EtherNet/IP network, select *Communications* and *Who Active*.



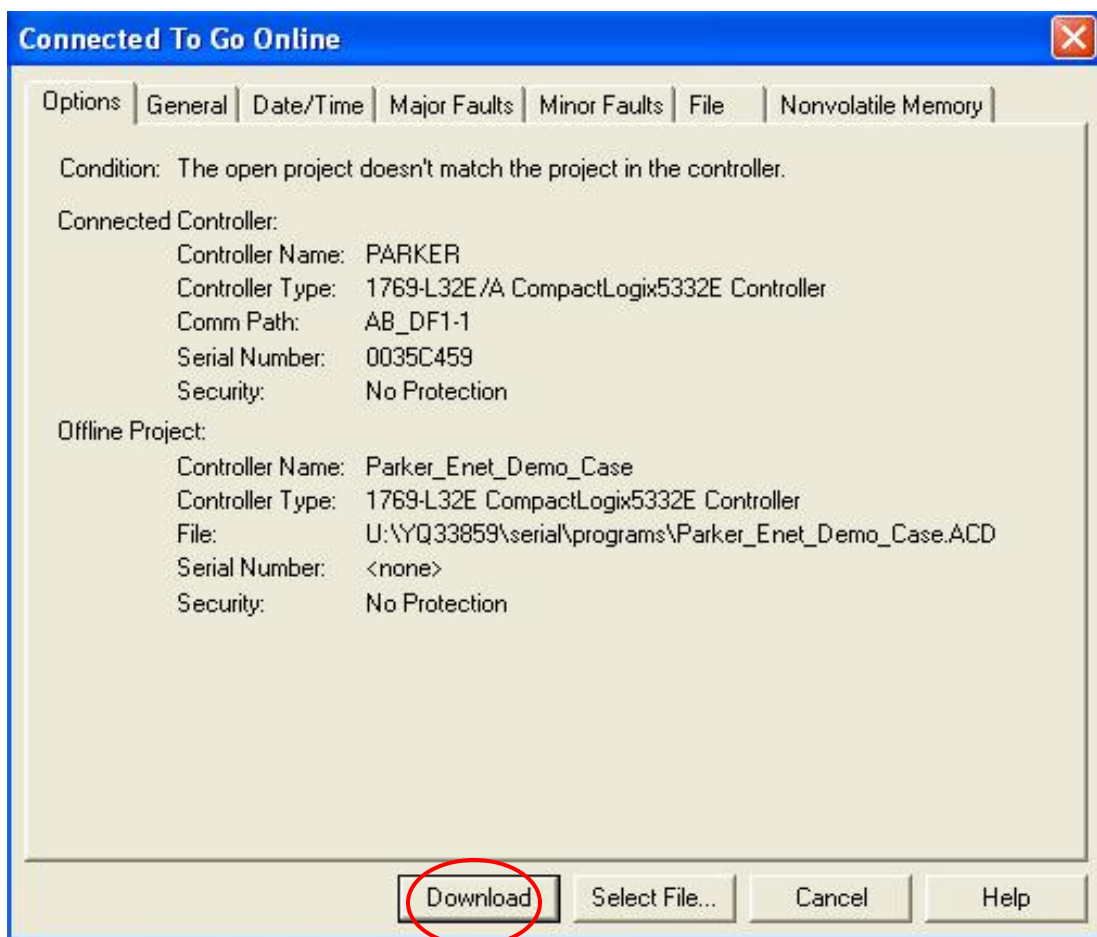
Step 3: Establishing Communications (cont'd)

2. Select the path (AB_DF1-1, DF1) and click *Go Online*.



Step 3: Establishing Communications (cont'd)

3. *Download* the new file in order to match the file in the controller.



Step 3: Establishing Communications (cont'd)

If any errors occur after the download, make sure that the IP address that was put into the RSLogix 5000 matches the IP address of the demo case. Check the icons on your modules in the directory tree on the left. Make sure that there are no exclamation marks.

Step 3: Establishing Communications (cont'd)

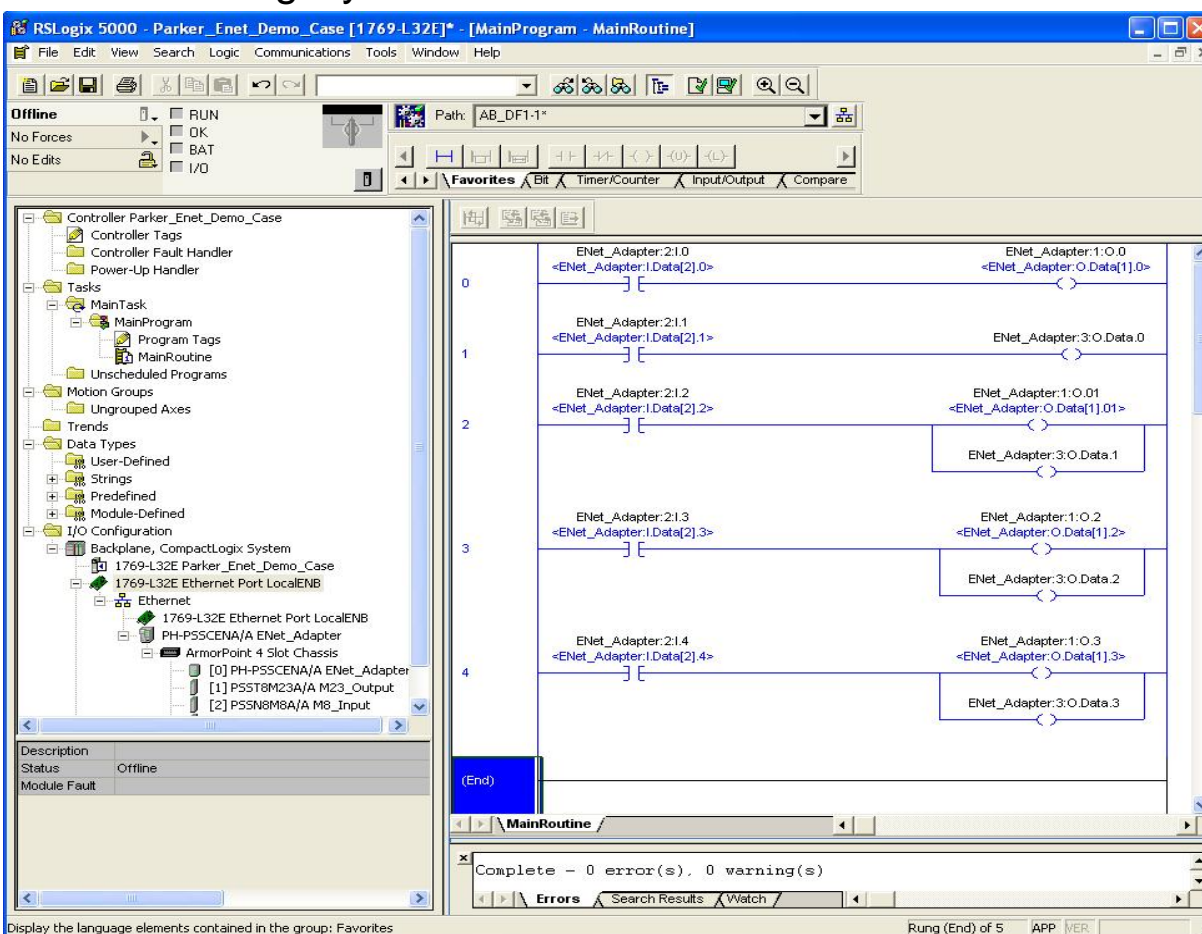
4. To ensure that you have tags associated with your modules, select the **Controller Tags** line in the directory tree on the left. Now, you can view the tags and the bits associated with them.

The screenshot shows the RSLogix 5000 software interface. On the left, the directory tree is expanded to 'Controller Tags', which is circled in red. The main window displays a table of tags with the following columns: Name, Value, Force Mask, Style, and Data Type. The table lists various tags associated with the ENet_Adapter modules, including ENet_Adapter:1:C, ENet_Adapter:1:I, ENet_Adapter:1:O, ENet_Adapter:2:C, ENet_Adapter:2:I, ENet_Adapter:3:C, ENet_Adapter:3:I, ENet_Adapter:3:O, ENet_Adapter:I, and ENet_Adapter:O. The word 'Tags' is written in red below the table.

Name	Value	Force Mask	Style	Data Type
+ ENet_Adapter:1:C	{...}	{...}		PH.PSST8:C:0
+ ENet_Adapter:1:I	2#1111_0000		Binary	SINT
+ ENet_Adapter:1:O	2#0000_0000		Binary	SINT
+ ENet_Adapter:2:C	{...}	{...}		PH.PSSN8:C:0
+ ENet_Adapter:2:I	2#0000_0000		Binary	SINT
+ ENet_Adapter:3:C	{...}	{...}		PH.PSSV32A:C:
+ ENet_Adapter:3:I	{...}	{...}		PH.PSSV32A:I:
+ ENet_Adapter:3:O	{...}	{...}		PH.PSSV32A:O:
+ ENet_Adapter:I	{...}	{...}		PH.PSSC_4SLO
+ ENet_Adapter:O	{...}	{...}		PH.PSSC_4SLO

Step 4: Programming

1. After the proper communications have been established, you can write a program to control the isys I/O modules. Refer to your RSLogix 5000 Manual for more details on programming. When you have finished writing your program, you should have a screen that shows you the ladder logic you have created.





Pneumatic Division
Richland, Michigan 49083

Installation & Service Instructions E104P

isysNet EtherNet/IP Adapter,
Series A (PSSCENA)

ISSUED: December, 2006
Supersedes: December, 2005
Doc.# E104P, EN# 060961, Rev. 3

WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
- Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.
- Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.
- Medium must be moisture-free if ambient temperature is below freezing.
- Service according to procedures listed in these instructions.
- Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
- After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.
- Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.

Safety Guide

For more complete information on recommended application guidelines, see the Safety Guide section of Pneumatic Division catalogs or you can download the **Pneumatic Division Safety Guide** at: www.parker.com/safety

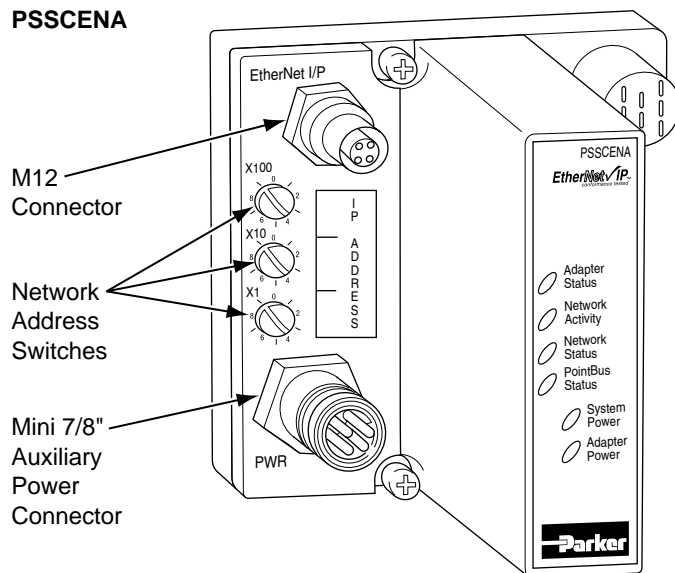
Introduction

Follow these instructions when installing, operating, or servicing the product.

isysNet EtherNet/IP Adapter, Series A (PSSCENA)

The sealed IP67 housing of the adapter requires no enclosure. (Note that environmental requirements other than IP67 may require an additional appropriate housing.) The EtherNet/IP connector is a sealed D-coded M12 (micro) style. The EtherNet/IP adapter is shown below.

PSSCENA



WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application, including consequences of any failure and review the information concerning the product or systems in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

EXTRA COPIES OF THESE INSTRUCTIONS ARE AVAILABLE FOR INCLUSION IN EQUIPMENT / MAINTENANCE MANUALS THAT UTILIZE THESE PRODUCTS. CONTACT YOUR LOCAL REPRESENTATIVE.

isysNet EtherNet/IP Adapter User Manual

The isysNet EtherNet/IP Adapter User Manual PSS-UM004A-EN-P is not available at this time. Please refer to Rockwell Automation 1734 POINT I/O EtherNet/IP Adapter User Manual 1734-UM011A-EN-P for similar setup information, which is available online at <http://literature.rockwellautomation.com/>.

Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. *Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls* (available online at www.parker.com/pneu/isysNet) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.





In no event will Parker Hannifin Corporation be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Parker Hannifin Corporation cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Parker Hannifin Corporation with respect to use of information, circuits, equipment, or software described in this manual.

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Throughout this manual we use notes to make you aware of safety considerations.

WARNING	Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
	
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.
ATTENTION	Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you:
	<ul style="list-style-type: none"> • Identify a Hazard • Avoid a Hazard • Recognize the Consequence
SHOCK HAZARD	Labels may be located on or inside the equipment to alert people that dangerous voltage may be present.
	
BURN HAZARD	Labels may be located on or inside the equipment to alert people that surfaces may be dangerous temperatures.
	

ATTENTION



Environment and Enclosure

This equipment is intended for use in overvoltage Category II applications (as defined in IEC publication 60664-1), at altitudes up to 2000 meters without derating. This equipment is considered Group 1, Class A industrial equipment according to IEC/CISPR Publication 11. Without appropriate precautions, there may be potential difficulties ensuring electromagnetic compatibility in other environments due to conducted as well as radiated disturbance. This equipment is supplied as "enclosed" equipment. It should not require additional system enclosure when used in locations consistent with the enclosure type ratings stated in the Specifications section of this publication. Subsequent sections of this publication may contain additional information regarding specific enclosure type ratings, beyond what this product provides, that are required to comply with certain product safety certifications.

NOTE: See NEMA Standards publication 250 and IEC publication 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosure. Also, see the appropriate sections in this publication, as well as the publication E115P ("Industrial Automation Wiring and Grounding Guidelines"), for additional installation requirements pertaining to this equipment.

ATTENTION



Preventing Electrostatic Discharge

This equipment is sensitive to electrostatic discharge, which can cause internal damage and affect normal operation. Follow these guidelines when you handle this equipment:

- Touch a grounded object to discharge potential static.
- Wear an approved grounding wriststrap.
- Do not touch connectors or pins on component boards.
- Do not touch circuit components inside the equipment.
- If available, use a static-safe workstation.
- When not in use, store the equipment in appropriate static-safe packaging.

Before You Begin

To effectively use your adapter, note the following considerations.

Determine Compatibility

If using the adapter with an Allen-Bradley 1756-ENBT module or 1788-ENBT module, use the following required firmware versions for these bridge modules:

- 1756-ENBT firmware version 2.3 or greater
- 1788-ENBT firmware version 1.33 or greater

If you use the BootP Utility to assign IP addresses to the adapter, use version 2.3.2 or greater.

Understanding Messaging

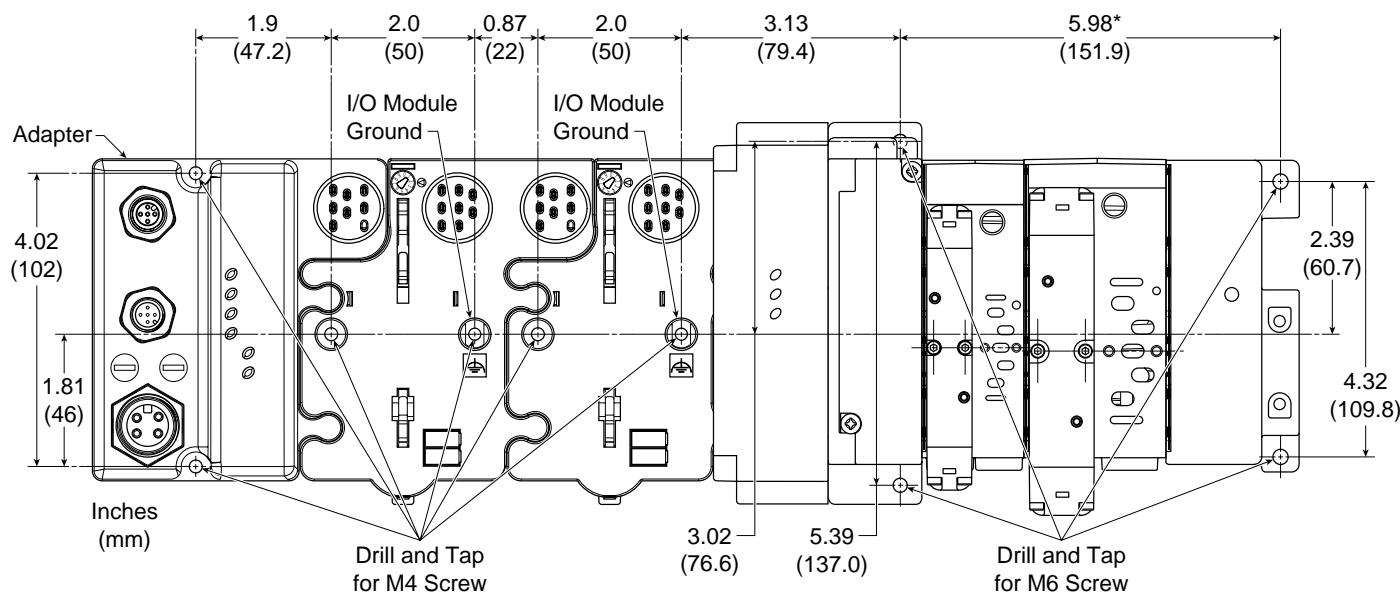
Class 3 (Explicit Message) requests through the adapter to a specific I/O module may not always receive a response from the I/O module. In the case where the I/O module does not reply to the request, the adapter responds with an error code indicating a time-out.

Establish I/O Connections

Mount the Adapter and I/O Base

To mount the adapter on a wall or panel, use the screw holes provided in the adapter.

A mounting illustration for the adapter with I/O bases is shown below.



When you power up an isysNet I/O system and establish I/O connections, the outputs transition to the Idle state, applying Idle state data before going to RUN mode. This occurs even when the controller making the connection is already in RUN mode.

Configure Autobaud

The adapter cannot reconfigure an I/O module that you previously configured to operate at a fixed baud rate. When you reuse an isysNet I/O module from another isysNet I/O system, configure the module to autobaud before using it with the adapter.

Open Configuration Method

For using isysNet EtherNet/IP Adapters without RSNetWorx™ or RSLogix™ 5000, refer to document "User Guide: Configuration of the isysNet™ Pneumatics Platform using Explicit Messaging", which is available at www.parker.com/pneu/isysnet.

Grounding

Each isysNet base has two mounting holes, with the one on the right being the means to ground each module. Each module must be grounded.

Install the Mounting Base as Follows:

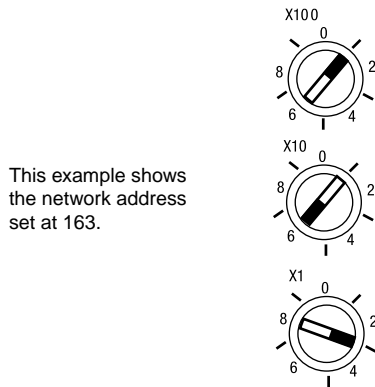
1. Lay out the required points as shown above in the drilling dimension drawing.
2. Drill the necessary holes for #8 (M4) machine or self-tapping screws.
3. Mount the adapter using #8 (M4) screws.
4. Ground the system using the ground lug connection in the I/O base. (The ground lug connection is also a mounting hole.)

Set the Network Address

To set the network address, you can:

- Adjust the switches on the front of the module
- Use a Dynamic Host Configuration Protocol (DHCP) server
- Retrieve the IP address from nonvolatile memory

The adapter reads the switches first to determine if the switches are set to a valid number. You set the node address by adjusting the 3 switches on the front of the module (refer to the illustration on page 1). Use a small blade screwdriver to rotate the switches. Line up the small notch on the switch with the number setting you wish to use. Valid settings range from 001 through 254.



This example shows the network address set at 163.

When the switches are set to a valid number, the adapter's IP address will be 192.168.1.xxx (where xxx represents the number set on the switches). The adapter's subnet mask will be 255.255.255.0 and the gateway address will be set to 0.0.0.0. When the adapter is reading the network address set on the switches, the adapter will not have a host name assigned to it or use any Domain Name System.

If the switches are set to an invalid number (i.e., 000 or a value greater than 254), the adapter checks to see if DHCP is enabled. If DHCP is enabled, the adapter asks for an address from a DHCP server. The DHCP server will also assign other Transport Control Protocol (TCP) parameters.

If DHCP is not enabled, the adapter will use the IP address (along with other TCP configurable parameters) stored in nonvolatile memory.

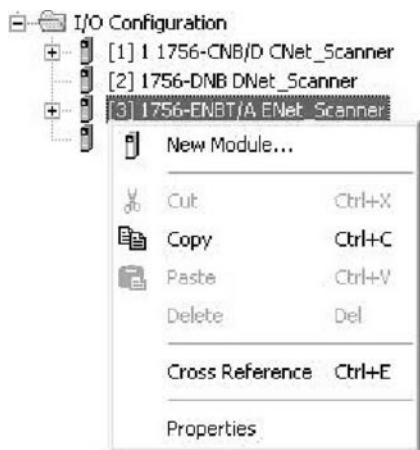
EDS File Requirements

The EDS file is available online at www.parker.com/pneu/isysNet.

Add EtherNet/IP Adapter to RSLogix 5000 I/O Configuration

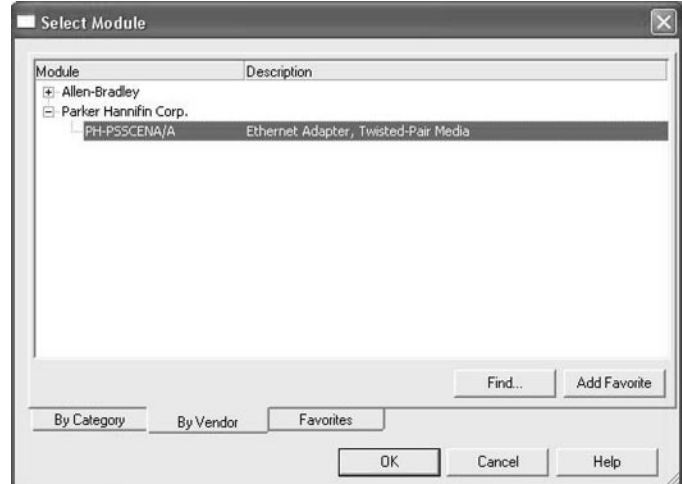
To add your PSSCENA to RSLogix 5000 I/O configuration, follow these steps:

- In RSLogix 5000, highlight the **EtherNet/IP Scanner**, right click and select **New Module**.

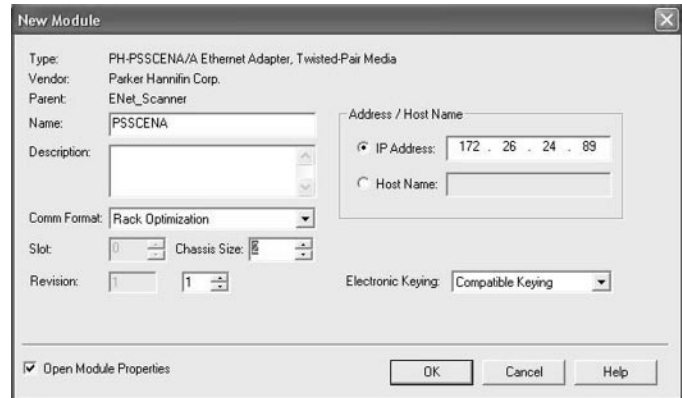


If your RSLogix 5000 is Version 15.X or greater:

- Choose the **PSSCENA** module from the list of Parker modules.



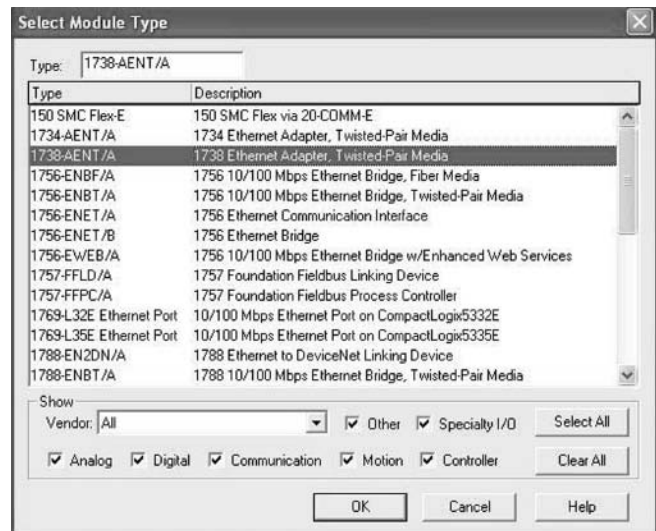
- Enter a name, an appropriate I/P address and chassis size.



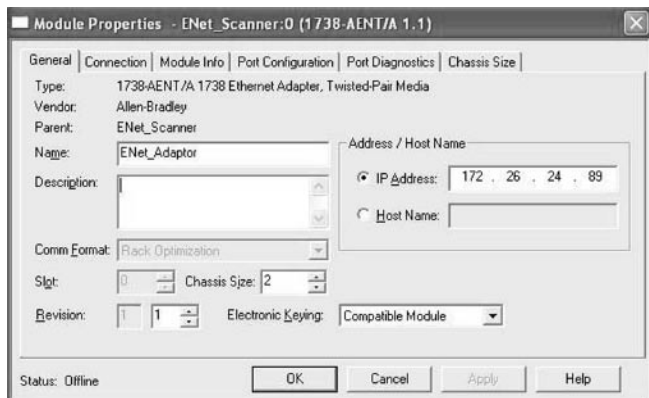
- Choose **Next** to set RPI.
- Choose **Finish**. Notice that the PSSCENA is now under the I/O configuration.

If your RSLogix 5000 is Version 13.X:

- Choose the **1738-AENT/A** from the list of modules.



- Enter a name, an appropriate IP address, and chassis size. Make sure to choose **Compatible Module for Electronic Keying** setting.



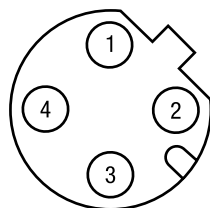
- Choose **Next** to set RPI.
- Choose **Finish**. Notice that the 1738-AENT is now under the I/O configuration

Wire the EtherNet/IP Adapter

Following are wiring instructions for the EtherNet/IP Adapter.

PSSCENA Network Connector (D-Coded M12)

Female In Connector

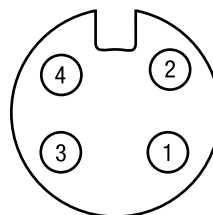


(view into connector)

- Pin 1 - Tx +
- Pin 2 - Rx +
- Pin 3 - Tx -
- Pin 4 - Rx -

PSSCENA Auxiliary Power (Mini 7/8")

Male In Connector



(view into connector)

- Pin 1 - User Power +
- Pin 2 - Adapter Power +
- Pin 3 - Adapter Power -
- Pin 4 - User Power -

NOTE: User power is the 24VDC power for field devices.

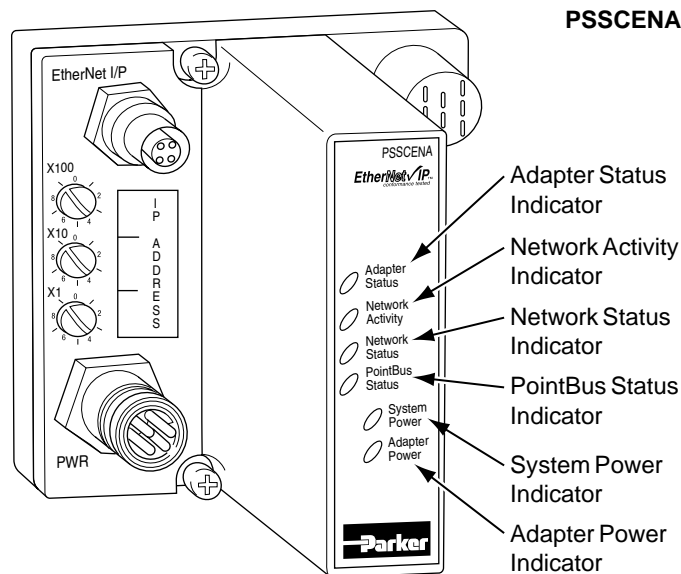
Adapter power is the 24VDC power for adapter. It is converted to 5VDC to power isysNet modules.

ATTENTION



Make sure all connectors and caps are securely tightened to properly seal the connections against leaks and maintain IP67 requirements.

Troubleshoot with the Indicators



Indication	Probable Cause
Adapter Status	
Off	No power applied to device
Flashing Red/Green	LED power up test (module self-test)
Green	Device is operating normally
Flashing Red	Recoverable fault has occurred: <ul style="list-style-type: none"> - Firmware (NVS) update - Network IP address changed - CPU load exceeded
Solid Red	Unrecoverable fault has occurred: <ul style="list-style-type: none"> - Self-test failure (checksum failure at power up, ramtest) failure at power up - Firmware fatal error

Indication	Probable Cause
Network Activity	
Off	No link established
Flashing Green/Off	Transmit or receive activity
Green	Link established

Indication	Probable Cause
Network Status	
Off	Device is not initialized. The module does not have an IP address.
Flashing Green	No CIP connections. Device has an IP address, but no CIP connections are established.
Green	CIP connections. Device on line, has an IP address, and CIP connections are established.
Flashing Red	One or more Ethernet® connections has timed out.
Red	No link. The module is not physically connected to a powered Ethernet device.
Flashing Red/Green	The module is performing a self test (only occurs during power up test).

Indication	Probable Cause
PointBus Status	
Off	Device not powered - check module status indicator
Flashing Red/Green	Recoverable fault has occurred: <ul style="list-style-type: none"> - At power up the number of expected modules does not equal the number of modules present - A module is missing - Node fault (I/O connection timeout)
Red	Unrecoverable fault has occurred: <ul style="list-style-type: none"> - The adapter is bus off - Controller in program/idle mode - Ethernet cable open
Green	Adapter is on line with connections established (normal operation, run mode)

Indication	Probable Cause
System Power*	
Off	Not active - Field power is off, overloaded backplane or dc-dc converter problem
Green	System power on - dc-dc converter active (5V)

Indication	Probable Cause
Adapter Power**	
Off	Not active - Field power is off
Green	Power on - 24V present

* System Power Indicator shows the 5V power output from the dc-dc converter.

** Adapter Power Indicator shows the 24V power input to the dc-dc converter.

Specifications

Following are specifications for the PSSCENA EtherNet/IP adapter.

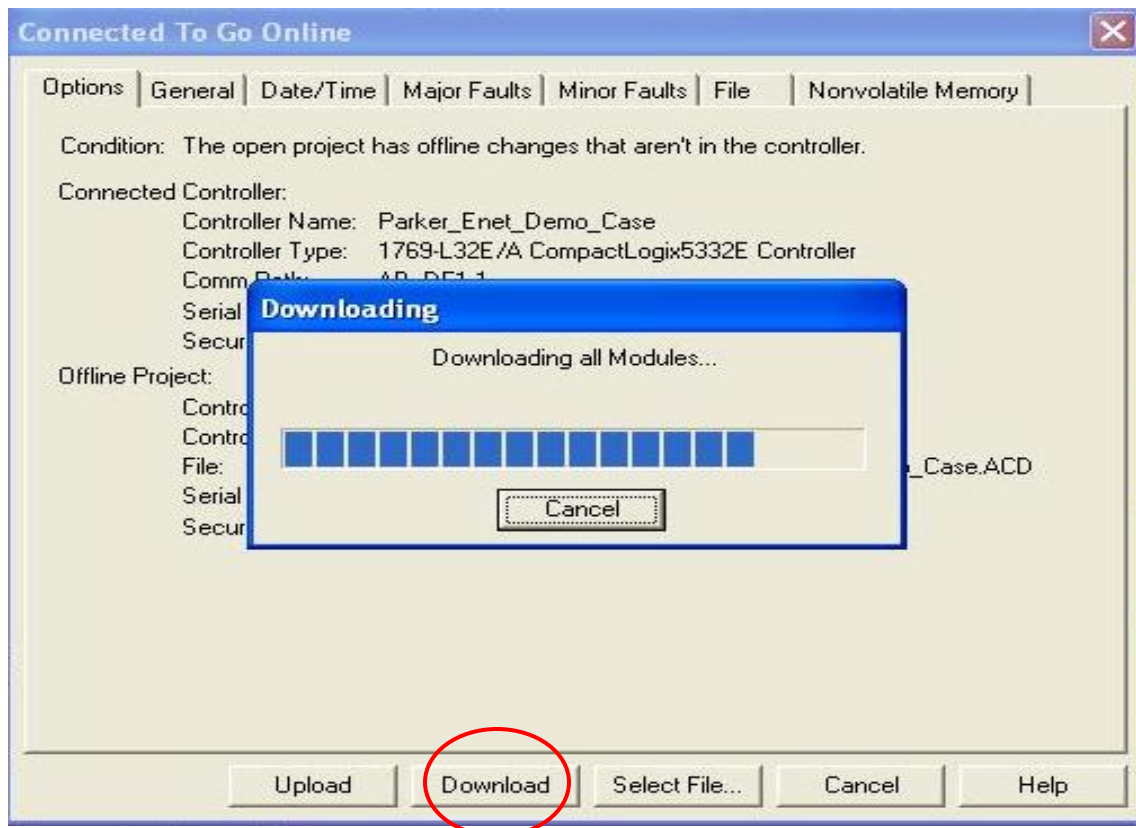
EtherNet/IP Adapter - PSSCENA																							
Expansion I/O Capacity	<ul style="list-style-type: none"> Maximum of 63 modules Maximum of 5 Rack Optimized connections (for digital modules only) Maximum of 25 Direct connections PSSCENA backplane current output = 1.0A maximum. The actual number of modules can vary. Add up the current requirements of the modules you want to use to make sure they do not exceed the amperage limit of 1.0A for the PSSCENA. Backplane current can be extended beyond 1.0A with a PSSSE24A Backplane Extension Power Supply. Add multiple PSSSE24A modules to reach the 63 module maximum. <table> <tr> <th>Cat. No.</th><th>PointBus Current Requirements</th></tr> <tr> <td>PSSN8xxx</td><td>75 mA</td></tr> <tr> <td>PSSP8xxx</td><td>75 mA</td></tr> <tr> <td>PSST8xxx</td><td>75 mA</td></tr> <tr> <td>PSSTR4M12A</td><td>90 mA</td></tr> <tr> <td>PSSNACM12A</td><td>75 mA</td></tr> <tr> <td>PSSNAVM12A</td><td>75 mA</td></tr> <tr> <td>PSSTACM12A</td><td>75 mA</td></tr> <tr> <td>PSSTAVM12A</td><td>75 mA</td></tr> <tr> <td>PSSS23A</td><td>75 mA</td></tr> <tr> <td>PSSV32A</td><td>75 mA</td></tr> </table>	Cat. No.	PointBus Current Requirements	PSSN8xxx	75 mA	PSSP8xxx	75 mA	PSST8xxx	75 mA	PSSTR4M12A	90 mA	PSSNACM12A	75 mA	PSSNAVM12A	75 mA	PSSTACM12A	75 mA	PSSTAVM12A	75 mA	PSSS23A	75 mA	PSSV32A	75 mA
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Power Supply	Note: In order to comply with CE Low Voltage Directives (LVD), you must use either a NEC Class 2, a Safety Extra Low Voltage (SELV) or a Protected Extra Low Voltage (PELV) power supply to power this adapter. A SELV supply cannot exceed 30V rms, 42.4V peak or 60VDC under normal conditions and under single fault conditions. A PELV supply has the same rating and is connected to protected earth.																						
Input Voltage Rating	24VDC nominal 10-28.8VDC range																						
Inrush Current	6A maximum for 10ms																						
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Interruption	Output voltage will stay within specifications when input drops out for 10ms at 10V with maximum load																						
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LED Indicators	1 green/red Adapter status 1 green Network activity 1 green/red Network status 1 green/red PointBus status 1 green System Power (PointBus 5V power) 1 green Adapter Power (24V from field supply)																						
Power Consumption, Maximum	8.1W @ 28.8VDC																						
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Thermal Dissipation, Maximum	9.5 BTU/hr. @ 28.8VDC																						
PointBus Output Current, Maximum	1A @ 5VDC $\pm 5\%$ (4.75 - 5.25)																						
Input Overvoltage Protection	Reverse polarity protected																						
Isolation Voltage (continuous-voltage withstand rating)	50V rms Tested to withstand 1250VAC rms for 60s																						
Field Power Bus Nominal Voltage Supply Voltage Supply Current	24VDC 10-28.8VDC range 10A maximum																						
Dimensions	Inches (Millimeters) 4.41H x 2.83W x 2.56D (112H x 72W x 65D)																						

General Specifications (continued)	
Operating Temperature	IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): -20 to 60°C (-4 to 140°F)
Storage Temperature	IEC 60068-2-1 (Test Ab, Un-packaged Non-operating Cold), IEC 60068-2-2 (Test Bb, Un-packaged Non-operating Dry Heat), -40 to 85°C (-40 to 185°F)
Relative Humidity	IEC 60068-2-30 (Test Db, Un-packaged Non-operating Damp Heat): 5-95% non-condensing
Shock	IEC60068-2-27 (Test Ea, Unpackaged Shock): Operating 30g Non-operating 50g
Vibration	IEC60068-2-6 (Test Fc, Operating): 5g @ 10-500Hz
ESD Immunity	IEC 61000-4-2: 6kV contact discharges 8kV air discharges
Radiated RF Immunity	IEC 61000-4-3: 10V/m with 1kHz sine-wave 80%AM from 30MHz to 2000MHz 10V/m with 200Hz 50% Pulse 100%AM at 900Mhz 10V/m with 200Hz 50% Pulse 100%AM at 1890Mhz
EFT/B Immunity	IEC 61000-4-4: ±4kV at 5kHz on power ports ±2kV at 5kHz on communications ports
Surge Transient Immunity	IEC 61000-4-5: ±1kV line-line(DM) and ±2kV line-earth(CM) on power ports ±2kV line-earth(CM) on unshielded communications port (tested as balanced circuits)
Conducted RF Immunity	IEC 61000-4-6: 10Vrms with 1kHz sine-wave 80%AM from 150kHz to 80MHz
Emissions	CSPR 11: Group 1, Class A
Enclosure Type Rating	Meets IP65/66/67 (when marked)
Mounting Base Screw Torque	#8 screw, 7.5 in. lbs. in Aluminum, 16 in. lbs. in Steel
Wiring Category ¹	1 - on power ports 1 - on communications ports
Weight Imperial (Metric)	0.80 lb. (0.36 kg)
Certifications: (when product is marked)	<div> <div>c-UL-us</div> <div>UL Listed Industrial Control Equipment, certified for US and Canada</div> </div> <div> <div>CE</div> <div>European Union 89/336/EEC EMC Directive, compliant with: EN 61000-6-4; Industrial Emissions EN 50082-2; Industrial Immunity EN 61326; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity</div> </div> <div> <div>C-Tick</div> <div>Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions</div> </div> <div> <div>EtherNet/IP</div> <div>ODVA conformance tested to EtherNet/IP specifications</div> </div>

1. Use this Conductor Category information for planning conductor routing. Refer to Publication E115P, "Industrial Automation Wiring and Grounding Guidelines".

Step 4: Programming (cont'd)

2. *Download* your program to the controller



3. After you have downloaded your program, you can begin testing the inputs and outputs.





Pneumatic Division
Richland, Michigan 49083

Installation & Service Instructions E104P

isysNet EtherNet/IP Adapter,
Series A (PSSCENA)

ISSUED: December, 2006

Supersedes: December, 2005

Doc.# E104P, EN# 060961, Rev. 3

WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
- Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.
- Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.
- Medium must be moisture-free if ambient temperature is below freezing.
- Service according to procedures listed in these instructions.
- Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
- After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.
- Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.

Safety Guide

For more complete information on recommended application guidelines, see the Safety Guide section of Pneumatic Division catalogs or you can download the **Pneumatic Division Safety Guide** at: www.parker.com/safety

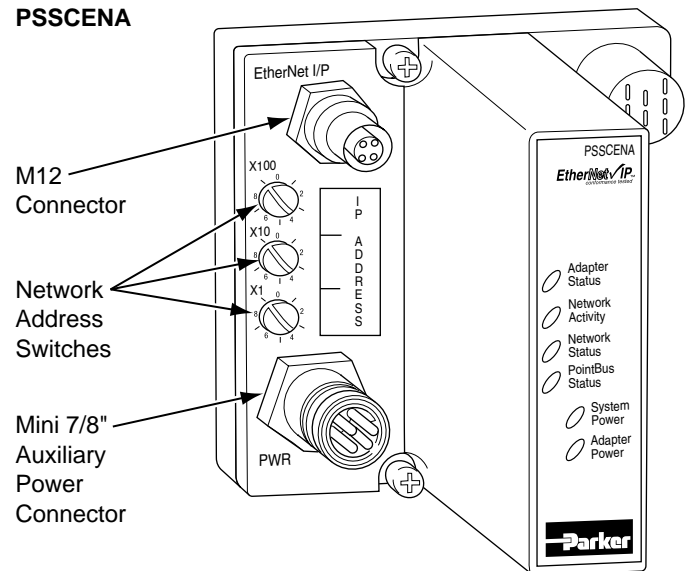
Introduction

Follow these instructions when installing, operating, or servicing the product.

isysNet EtherNet/IP Adapter, Series A (PSSCENA)

The sealed IP67 housing of the adapter requires no enclosure. (Note that environmental requirements other than IP67 may require an additional appropriate housing.) The EtherNet/IP connector is a sealed D-coded M12 (micro) style. The EtherNet/IP adapter is shown below.

PSSCENA



WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application, including consequences of any failure and review the information concerning the product or systems in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

EXTRA COPIES OF THESE INSTRUCTIONS ARE AVAILABLE FOR INCLUSION IN EQUIPMENT / MAINTENANCE MANUALS THAT UTILIZE THESE PRODUCTS. CONTACT YOUR LOCAL REPRESENTATIVE.

isysNet EtherNet/IP Adapter User Manual

The isysNet EtherNet/IP Adapter User Manual PSS-UM004A-EN-P is not available at this time. Please refer to Rockwell Automation 1734 POINT I/O EtherNet/IP Adapter User Manual 1734-UM011A-EN-P for similar setup information, which is available online at <http://literature.rockwellautomation.com/>.

Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. *Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls* (available online at www.parker.com/pneu/isysNet) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.





In no event will Parker Hannifin Corporation be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Parker Hannifin Corporation cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Parker Hannifin Corporation with respect to use of information, circuits, equipment, or software described in this manual.

Reproduction of the contents of this manual, in whole or in part, without written permission of Parker Hannifin Corporation is prohibited.

Throughout this manual we use notes to make you aware of safety considerations.

WARNING	Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
	
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.
ATTENTION	Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you:
	<ul style="list-style-type: none"> • Identify a Hazard • Avoid a Hazard • Recognize the Consequence
SHOCK HAZARD	Labels may be located on or inside the equipment to alert people that dangerous voltage may be present.
	
BURN HAZARD	Labels may be located on or inside the equipment to alert people that surfaces may be dangerous temperatures.
	

ATTENTION



Environment and Enclosure

This equipment is intended for use in overvoltage Category II applications (as defined in IEC publication 60664-1), at altitudes up to 2000 meters without derating. This equipment is considered Group 1, Class A industrial equipment according to IEC/CISPR Publication 11. Without appropriate precautions, there may be potential difficulties ensuring electromagnetic compatibility in other environments due to conducted as well as radiated disturbance. This equipment is supplied as "enclosed" equipment. It should not require additional system enclosure when used in locations consistent with the enclosure type ratings stated in the Specifications section of this publication. Subsequent sections of this publication may contain additional information regarding specific enclosure type ratings, beyond what this product provides, that are required to comply with certain product safety certifications.

NOTE: See NEMA Standards publication 250 and IEC publication 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosure. Also, see the appropriate sections in this publication, as well as the publication E115P ("Industrial Automation Wiring and Grounding Guidelines"), for additional installation requirements pertaining to this equipment.

ATTENTION



Preventing Electrostatic Discharge

This equipment is sensitive to electrostatic discharge, which can cause internal damage and affect normal operation. Follow these guidelines when you handle this equipment:

- Touch a grounded object to discharge potential static.
- Wear an approved grounding wriststrap.
- Do not touch connectors or pins on component boards.
- Do not touch circuit components inside the equipment.
- If available, use a static-safe workstation.
- When not in use, store the equipment in appropriate static-safe packaging.

Before You Begin

To effectively use your adapter, note the following considerations.

Determine Compatibility

If using the adapter with an Allen-Bradley 1756-ENBT module or 1788-ENBT module, use the following required firmware versions for these bridge modules:

- 1756-ENBT firmware version 2.3 or greater
- 1788-ENBT firmware version 1.33 or greater

If you use the BootP Utility to assign IP addresses to the adapter, use version 2.3.2 or greater.

Understanding Messaging

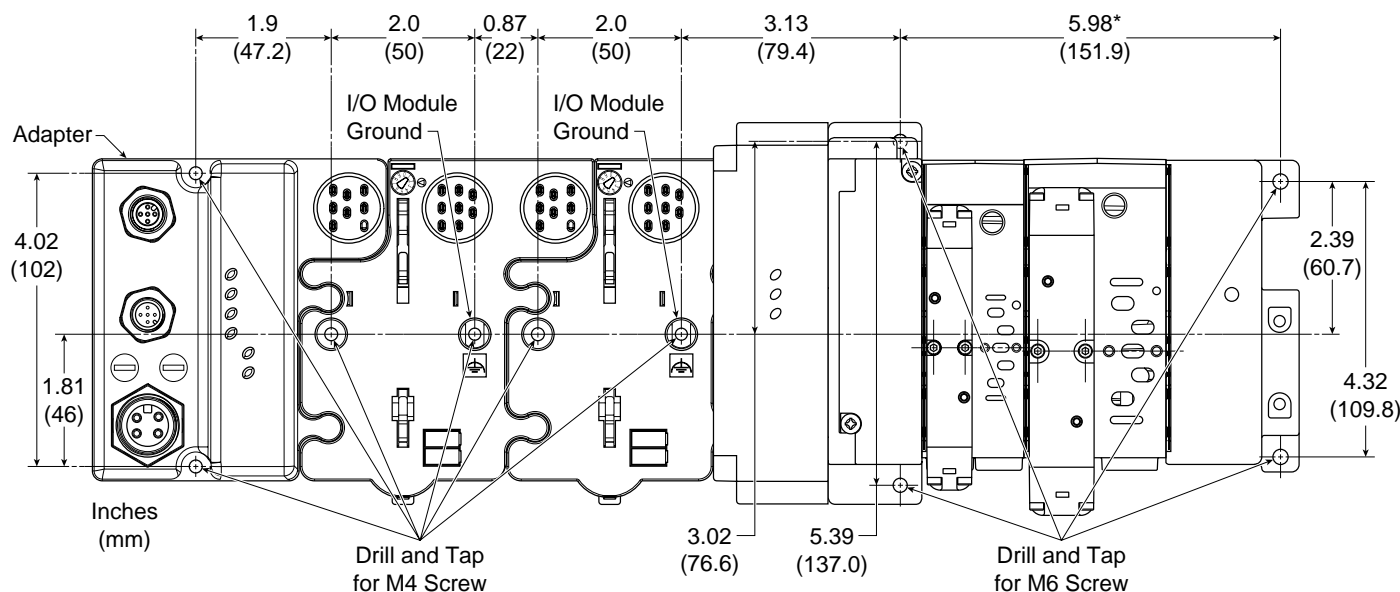
Class 3 (Explicit Message) requests through the adapter to a specific I/O module may not always receive a response from the I/O module. In the case where the I/O module does not reply to the request, the adapter responds with an error code indicating a time-out.

Establish I/O Connections

Mount the Adapter and I/O Base

To mount the adapter on a wall or panel, use the screw holes provided in the adapter.

A mounting illustration for the adapter with I/O bases is shown below.



When you power up an isysNet I/O system and establish I/O connections, the outputs transition to the Idle state, applying Idle state data before going to RUN mode. This occurs even when the controller making the connection is already in RUN mode.

Configure Autobaud

The adapter cannot reconfigure an I/O module that you previously configured to operate at a fixed baud rate. When you reuse an isysNet I/O module from another isysNet I/O system, configure the module to autobaud before using it with the adapter.

Open Configuration Method

For using isysNet EtherNet/IP Adapters without RSNetWorx™ or RSLogix™ 5000, refer to document "User Guide: Configuration of the isysNet™ Pneumatics Platform using Explicit Messaging", which is available at www.parker.com/pneu/isysnet.

* Depending on the type and number of manifolds, this dimension may vary. Refer to Catalog 0600P-# for additional information.

Grounding

Each isysNet base has two mounting holes, with the one on the right being the means to ground each module. Each module must be grounded.

Install the Mounting Base as Follows:

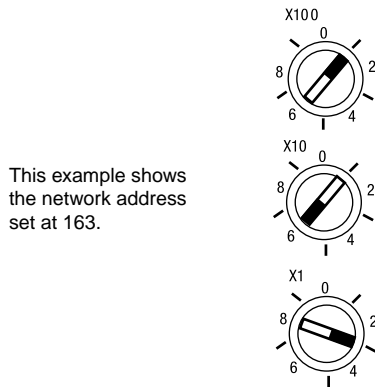
1. Lay out the required points as shown above in the drilling dimension drawing.
2. Drill the necessary holes for #8 (M4) machine or self-tapping screws.
3. Mount the adapter using #8 (M4) screws.
4. Ground the system using the ground lug connection in the I/O base. (The ground lug connection is also a mounting hole.)

Set the Network Address

To set the network address, you can:

- Adjust the switches on the front of the module
- Use a Dynamic Host Configuration Protocol (DHCP) server
- Retrieve the IP address from nonvolatile memory

The adapter reads the switches first to determine if the switches are set to a valid number. You set the node address by adjusting the 3 switches on the front of the module (refer to the illustration on page 1). Use a small blade screwdriver to rotate the switches. Line up the small notch on the switch with the number setting you wish to use. Valid settings range from 001 through 254.



This example shows the network address set at 163.

When the switches are set to a valid number, the adapter's IP address will be 192.168.1.xxx (where xxx represents the number set on the switches). The adapter's subnet mask will be 255.255.255.0 and the gateway address will be set to 0.0.0.0. When the adapter is reading the network address set on the switches, the adapter will not have a host name assigned to it or use any Domain Name System.

If the switches are set to an invalid number (i.e., 000 or a value greater than 254), the adapter checks to see if DHCP is enabled. If DHCP is enabled, the adapter asks for an address from a DHCP server. The DHCP server will also assign other Transport Control Protocol (TCP) parameters.

If DHCP is not enabled, the adapter will use the IP address (along with other TCP configurable parameters) stored in nonvolatile memory.

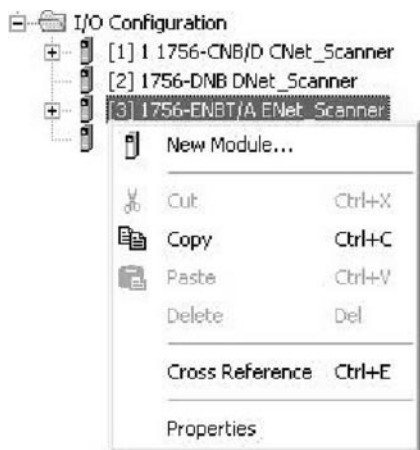
EDS File Requirements

The EDS file is available online at www.parker.com/pneu/isysNet.

Add EtherNet/IP Adapter to RSLogix 5000 I/O Configuration

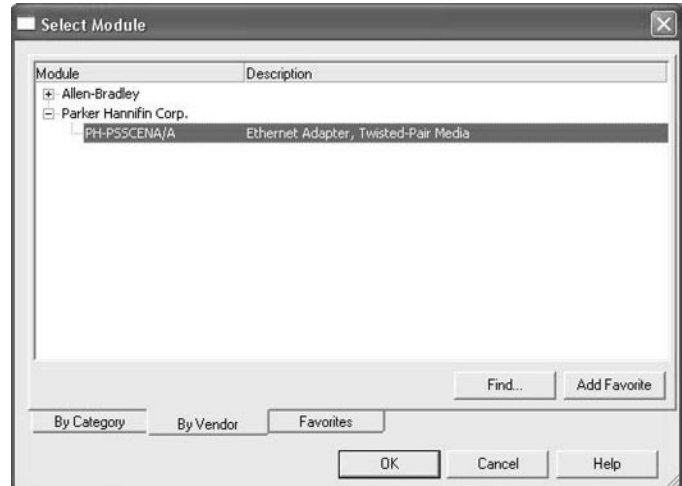
To add your PSSCENA to RSLogix 5000 I/O configuration, follow these steps:

- In RSLogix 5000, highlight the **EtherNet/IP Scanner**, right click and select **New Module**.

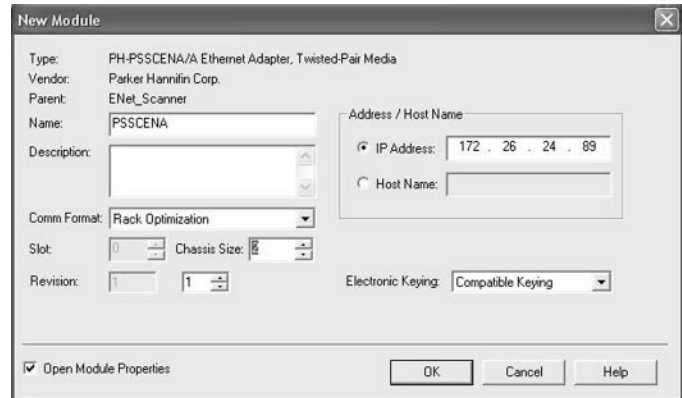


If your RSLogix 5000 is Version 15.X or greater:

- Choose the **PSSCENA** module from the list of Parker modules.



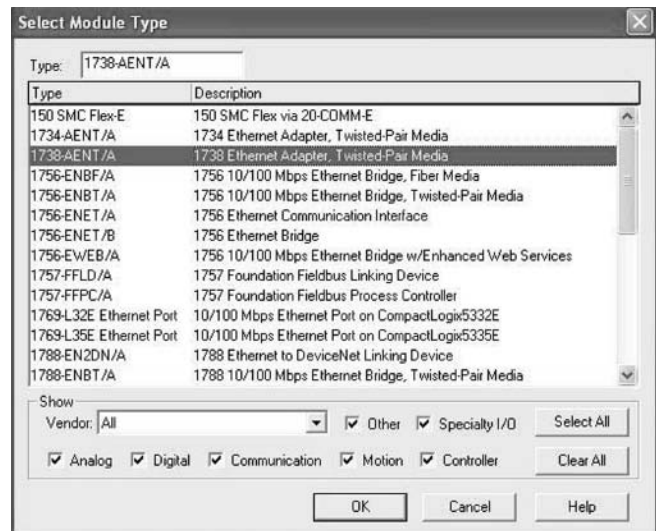
- Enter a name, an appropriate I/P address and chassis size.



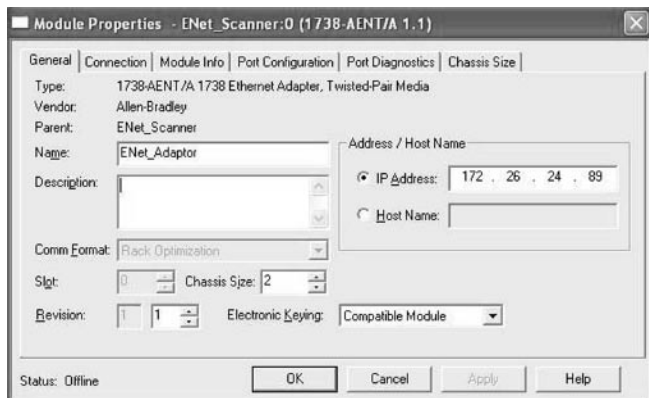
- Choose **Next** to set RPI.
- Choose **Finish**. Notice that the PSSCENA is now under the I/O configuration.

If your RSLogix 5000 is Version 13.X:

- Choose the **1738-AENT/A** from the list of modules.



- Enter a name, an appropriate IP address, and chassis size. Make sure to choose **Compatible Module for Electronic Keying** setting.



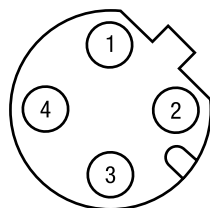
- Choose **Next** to set RPI.
- Choose **Finish**. Notice that the 1738-AENT is now under the I/O configuration

Wire the EtherNet/IP Adapter

Following are wiring instructions for the EtherNet/IP Adapter.

PSSCENA Network Connector (D-Coded M12)

Female In Connector

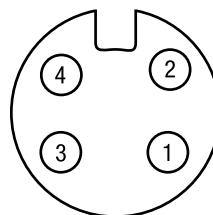


(view into connector)

- Pin 1 - Tx +
- Pin 2 - Rx +
- Pin 3 - Tx -
- Pin 4 - Rx -

PSSCENA Auxiliary Power (Mini 7/8")

Male In Connector



(view into connector)

- Pin 1 - User Power +
- Pin 2 - Adapter Power +
- Pin 3 - Adapter Power -
- Pin 4 - User Power -

NOTE: User power is the 24VDC power for field devices.

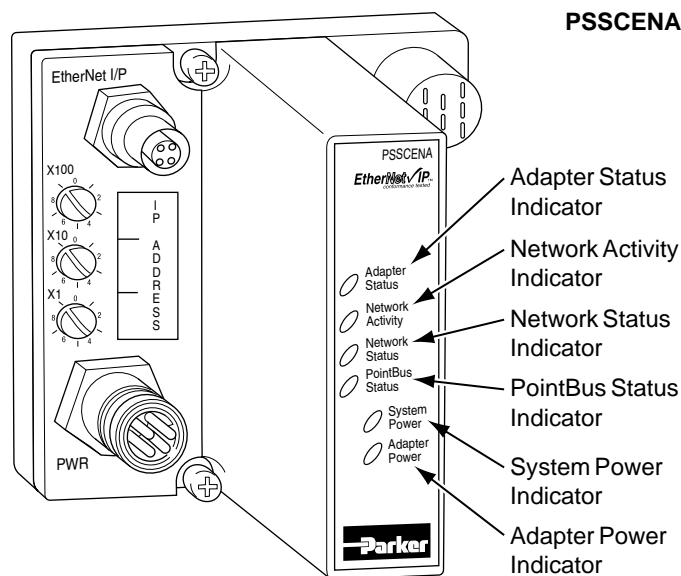
Adapter power is the 24VDC power for adapter. It is converted to 5VDC to power isysNet modules.

ATTENTION



Make sure all connectors and caps are securely tightened to properly seal the connections against leaks and maintain IP67 requirements.

Troubleshoot with the Indicators



Indication	Probable Cause
Adapter Status	
Off	No power applied to device
Flashing Red/Green	LED power up test (module self-test)
Green	Device is operating normally
Flashing Red	Recoverable fault has occurred: <ul style="list-style-type: none"> - Firmware (NVS) update - Network IP address changed - CPU load exceeded
Solid Red	Unrecoverable fault has occurred: <ul style="list-style-type: none"> - Self-test failure (checksum failure at power up, ramtest) failure at power up - Firmware fatal error

Indication	Probable Cause
Network Activity	
Off	No link established
Flashing Green/Off	Transmit or receive activity
Green	Link established

Indication	Probable Cause
Network Status	
Off	Device is not initialized. The module does not have an IP address.
Flashing Green	No CIP connections. Device has an IP address, but no CIP connections are established.
Green	CIP connections. Device on line, has an IP address, and CIP connections are established.
Flashing Red	One or more Ethernet® connections has timed out.
Red	No link. The module is not physically connected to a powered Ethernet device.
Flashing Red/Green	The module is performing a self test (only occurs during power up test).

Indication	Probable Cause
PointBus Status	
Off	Device not powered - check module status indicator
Flashing Red/Green	Recoverable fault has occurred: <ul style="list-style-type: none"> - At power up the number of expected modules does not equal the number of modules present - A module is missing - Node fault (I/O connection timeout)
Red	Unrecoverable fault has occurred: <ul style="list-style-type: none"> - The adapter is bus off - Controller in program/idle mode - Ethernet cable open
Green	Adapter is on line with connections established (normal operation, run mode)

Indication	Probable Cause
System Power*	
Off	Not active - Field power is off, overloaded backplane or dc-dc converter problem
Green	System power on - dc-dc converter active (5V)

Indication	Probable Cause
Adapter Power**	
Off	Not active - Field power is off
Green	Power on - 24V present

* System Power Indicator shows the 5V power output from the dc-dc converter.

** Adapter Power Indicator shows the 24V power input to the dc-dc converter.

Specifications

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EtherNet/IP Adapter - PSSCENA																							
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General Specifications (continued)	
Operating Temperature	IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): -20 to 60°C (-4 to 140°F)
Storage Temperature	IEC 60068-2-1 (Test Ab, Un-packaged Non-operating Cold), IEC 60068-2-2 (Test Bb, Un-packaged Non-operating Dry Heat), -40 to 85°C (-40 to 185°F)
Relative Humidity	IEC 60068-2-30 (Test Db, Un-packaged Non-operating Damp Heat): 5-95% non-condensing
Shock	IEC60068-2-27 (Test Ea, Unpackaged Shock): Operating 30g Non-operating 50g
Vibration	IEC60068-2-6 (Test Fc, Operating): 5g @ 10-500Hz
ESD Immunity	IEC 61000-4-2: 6kV contact discharges 8kV air discharges
Radiated RF Immunity	IEC 61000-4-3: 10V/m with 1kHz sine-wave 80%AM from 30MHz to 2000MHz 10V/m with 200Hz 50% Pulse 100%AM at 900Mhz 10V/m with 200Hz 50% Pulse 100%AM at 1890Mhz
EFT/B Immunity	IEC 61000-4-4: ±4kV at 5kHz on power ports ±2kV at 5kHz on communications ports
Surge Transient Immunity	IEC 61000-4-5: ±1kV line-line(DM) and ±2kV line-earth(CM) on power ports ±2kV line-earth(CM) on unshielded communications port (tested as balanced circuits)
Conducted RF Immunity	IEC 61000-4-6: 10Vrms with 1kHz sine-wave 80%AM from 150kHz to 80MHz
Emissions	CSPR 11: Group 1, Class A
Enclosure Type Rating	Meets IP65/66/67 (when marked)
Mounting Base Screw Torque	#8 screw, 7.5 in. lbs. in Aluminum, 16 in. lbs. in Steel
Wiring Category ¹	1 - on power ports 1 - on communications ports
Weight Imperial (Metric)	0.80 lb. (0.36 kg)
Certifications: (when product is marked)	<div> <div>c-UL-us</div> <div>UL Listed Industrial Control Equipment, certified for US and Canada</div> </div> <div> <div>CE</div> <div>European Union 89/336/EEC EMC Directive, compliant with: EN 61000-6-4; Industrial Emissions EN 50082-2; Industrial Immunity EN 61326; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity</div> </div> <div> <div>C-Tick</div> <div>Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions</div> </div> <div> <div>EtherNet/IP</div> <div>ODVA conformance tested to EtherNet/IP specifications</div> </div>

1. Use this Conductor Category information for planning conductor routing. Refer to Publication E115P, "Industrial Automation Wiring and Grounding Guidelines".



Pneumatic Division
Richland, Michigan 49083

Installation & Service Instructions E106P

isysNet 24 VDC Input Modules, Series A
(PSSN8M8A, PSSN8M12A, PSSN8M23A,
PSSP8M8A, PSSP8M12A, PSSP8M23A)

ISSUED: December, 2006
Supersedes: January, 2006

Doc.# E106P, EN# 060961, Rev. 3

⚠ WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
- Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.
- Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.
- Medium must be moisture-free if ambient temperature is below freezing.
- Service according to procedures listed in these instructions.
- Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
- After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.
- Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.

Safety Guide

For more complete information on recommended application guidelines, see the Safety Guide section of Pneumatic Division catalogs or you can download the **Pneumatic Division Safety Guide** at: www.parker.com/safety

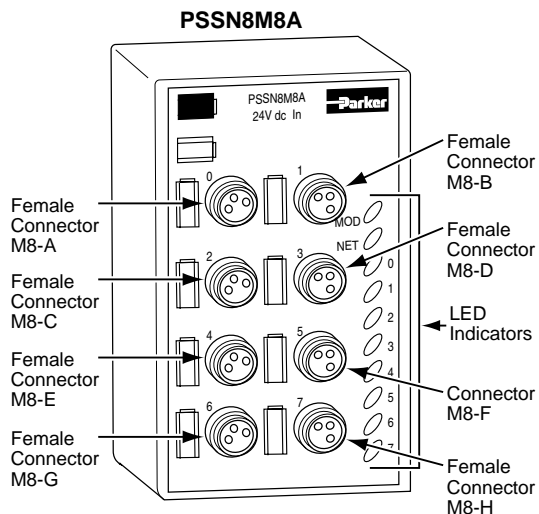
Introduction

Follow these instructions when installing, operating, or servicing the product.

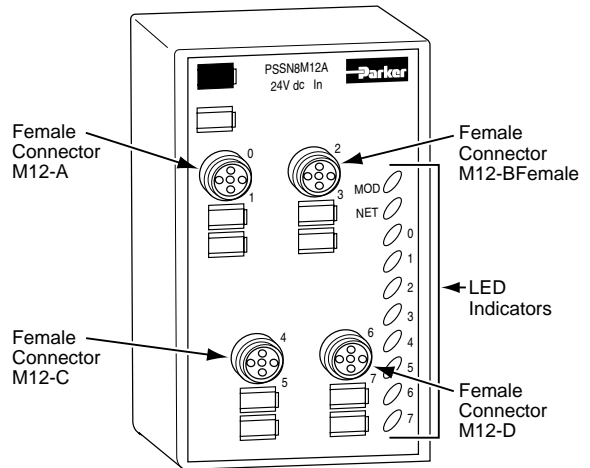
isysNet 24 VDC Input Modules, Series A

(PSSN8M8A, PSSN8M12A, PSSN8M23A,
PSSP8M8A, PSSP8M12A, PSSP8M23A)

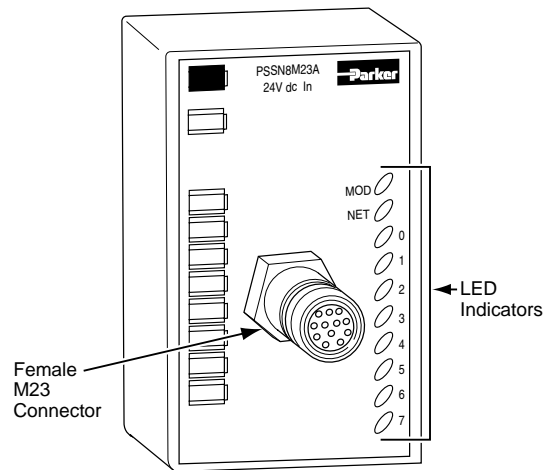
The sealed IP67 housing of these modules requires no enclosure. (Note that environmental requirements other than IP67 may require an additional appropriate housing.) I/O connectors are sealed M8 (pico) or M12 (micro) or M23 styles. The mounting base ships with the module.



PSSN8M12A



PSSN8M23A



⚠ WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application, including consequences of any failure and review the information concerning the product or systems in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

EXTRA COPIES OF THESE INSTRUCTIONS ARE AVAILABLE FOR INCLUSION IN EQUIPMENT / MAINTENANCE MANUALS THAT UTILIZE THESE PRODUCTS. CONTACT YOUR LOCAL REPRESENTATIVE.

Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. *Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls* (available online at www.parker.com/pneu/isysNet) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.





In no event will Parker Hannifin Corporation be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Parker Hannifin Corporation cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Parker Hannifin Corporation with respect to use of information, circuits, equipment, or software described in this manual.

Reproduction of the contents of this manual, in whole or in part, without written permission of Parker Hannifin Corporation is prohibited.

Throughout this manual we use notes to make you aware of safety considerations.

WARNING	Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
	
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.
ATTENTION	Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you:
	<ul style="list-style-type: none">• Identify a Hazard• Avoid a Hazard• Recognize the Consequence
SHOCK HAZARD	Labels may be located on or inside the equipment to alert people that dangerous voltage may be present.
	
BURN HAZARD	Labels may be located on or inside the equipment to alert people that surfaces may be dangerous temperatures.
	

ATTENTION



Environment and Enclosure

This equipment is intended for use in overvoltage Category II applications (as defined in IEC publication 60664-1), at altitudes up to 2000 meters without derating. This equipment is considered Group 1, Class A industrial equipment according to IEC/CISPR Publication 11. Without appropriate precautions, there may be potential difficulties ensuring electromagnetic compatibility in other environments due to conducted as well as radiated disturbance. This equipment is supplied as “enclosed” equipment. It should not require additional system enclosure when used in locations consistent with the enclosure type ratings stated in the Specifications section of this publication. Subsequent sections of this publication may contain additional information regarding specific enclosure type ratings, beyond what this product provides, that are required to comply with certain product safety certifications.

NOTE: See NEMA Standards publication 250 and IEC publication 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosure. Also, see the appropriate sections in this publication, as well as the publication E115P (“Industrial Automation Wiring and Grounding Guidelines”), for additional installation requirements pertaining to this equipment.

ATTENTION



Preventing Electrostatic Discharge

This equipment is sensitive to electrostatic discharge, which can cause internal damage and affect normal operation. Follow these guidelines when you handle this equipment:

- Touch a grounded object to discharge potential static.
- Wear an approved grounding wriststrap.
- Do not touch connectors or pins on component boards.
- Do not touch circuit components inside the equipment.
- If available, use a static-safe workstation.
- When not in use, store the equipment in appropriate static-safe packaging.

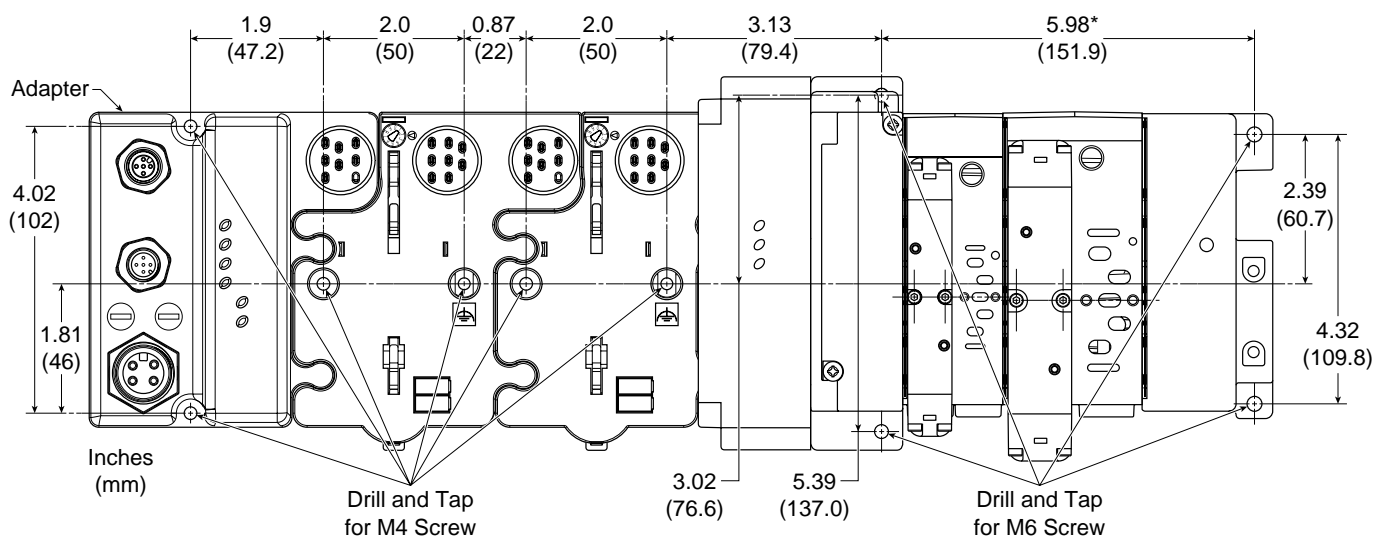
Mount the I/O Base

To mount the I/O base on a wall or panel, use the screw holes provided in the base.

IMPORTANT

The I/O module must be mounted on a grounded metal mounting plate or other conductive surface.

A drilling dimensions mounting illustration for the base with an adapter is shown below.

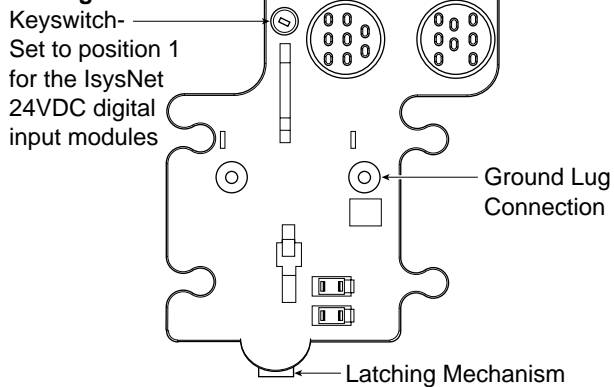


*Depending on the type and number of manifolds, this dimension may vary. Refer to Catalog 0600P-# for additional information.

Install the Mounting Base as Follows:

1. Lay out the required points as shown above in the drilling dimension drawing.
2. Drill the necessary holes for #8 (M4) machine or self-tapping screws.
3. Mount the base using #8 (M4) screws.
4. Ground the system using the ground lug connection. (The ground lug connection is also a mounting hole.)

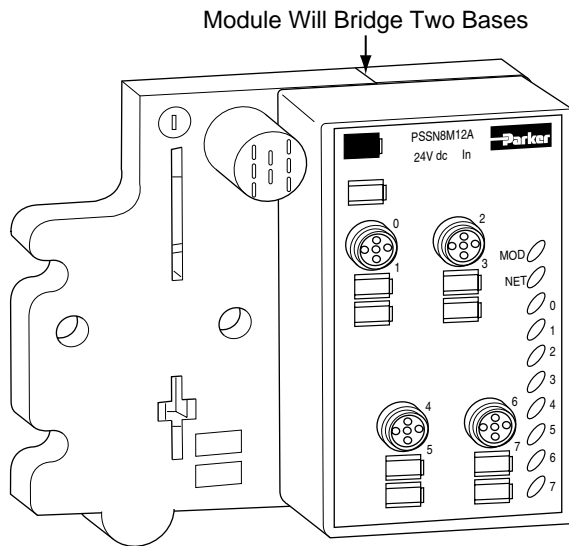
Mounting Base



Install the Digital Input Module

To Install the Digital Input Module, Proceed as Follows:

1. Using a bladed screwdriver, rotate the keyswitch on the mounting base clockwise until the number 1 aligns with the notch in the base.
2. Position the module vertically above the mounting base. The module will bridge two bases.



3. Push the module down until it engages the latching mechanism. You will hear a clicking sound when the module is properly engaged. The locking mechanism will lock the module to the base.

Remove the Digital Input Module From the Mounting Base

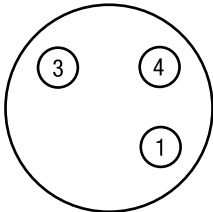
To Remove the Module from the Mounting Base:

1. Put a flat blade screwdriver into the slot of the orange latching mechanism.
2. Push the screwdriver toward the I/O module to disengage the latch. The module will lift up off the base.
3. Pull the module off of the base.

Wire the Input Modules

Following are wiring instructions for the digital input modules.

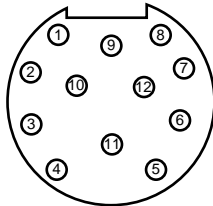
PSSN8M8A
PSSP8M8A



(view into connector)

- Pin 1 - 24VDC
- Pin 3 - Common
- Pin 4 - Input 0 (M8-A)
Input 1 (M8-B)
Input 2 (M8-C)
Input 3 (M8-D)
Input 4 (M8-E)
Input 5 (M8-F)
Input 6 (M8-G)
Input 7 (M8-H)

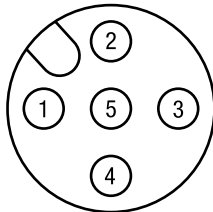
PSSN8M23A
PSSP8M23A



(view into connector)

- Pin 1 - Input 0
- Pin 2 - Input 1
- Pin 3 - Input 2
- Pin 4 - Input 3
- Pin 5 - Input 4
- Pin 6 - Input 5
- Pin 7 - Input 6
- Pin 8 - Input 7
- Pin 9 - Return (Com)
- Pin 10 - Return (Com)
- Pin 11 - 24VDC
- Pin 12 - Chassis

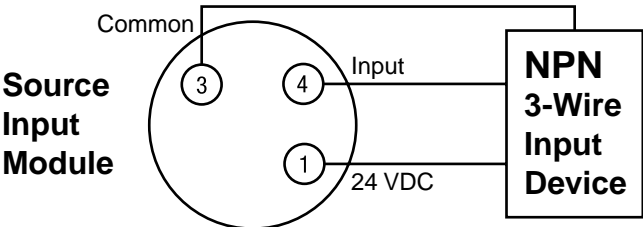
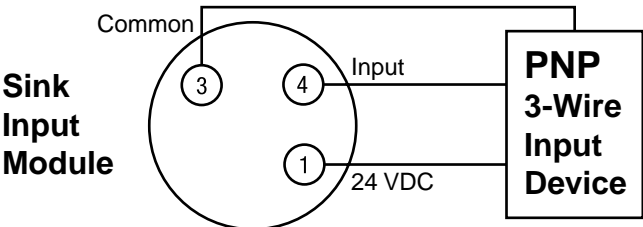
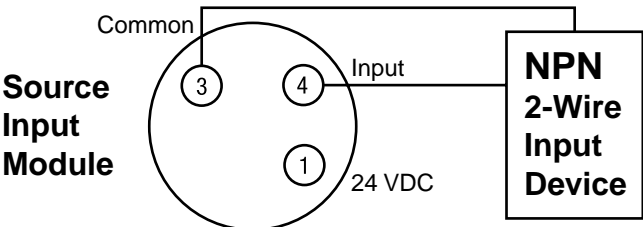
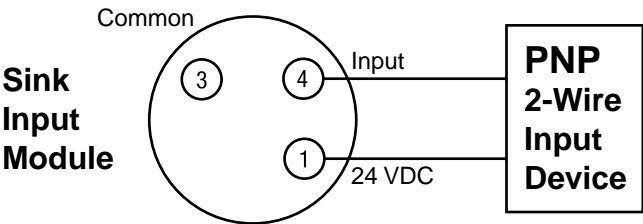
PSSN8M12A
PSSP8M12A



(view into connector)

- Pin 1 - 24VDC
- Pin 2 - Input 1 (M12-A)
Input 3 (M12-B)
Input 5 (M12-C)
Input 7 (M12-D)
- Pin 3 - Common
- Pin 4 - Input 0 (M12-A)
Input 2 (M12-B)
Input 4 (M12-C)
Input 6 (M12-D)
- Pin 5 - No Connect

Sink Input modules (PSSN8) require PNP type input device.
Source Input modules (PSSP8) require NPN type input device.
Wiring examples (PSSN8M8A and PSSP8M8A shown):



Digital Input Module

Input Module	Part Number
8 Digital Inputs M12 (NPN Sinking - Requires PNP Sourcing Input Device)	PSSN8M12A
8 Digital Inputs M12 (PNP Sourcing -Requires NPN Sinking Input Device)	PSSP8M12A
8 Digital Inputs M8 (NPN Sinking - Requires PNP Sourcing Input Device)	PSSN8M8A
8 Digital Inputs M8 (PNP Sourcing - Requires NPN Sinking Input Device)	PSSP8M8A
8 Digital Inputs M23 12-Pin (PNP Sourcing - Requires NPN Sinking Input Device)	PSSP8M23A
8 Digital Inputs M23 12-Pin (NPN Sinking - Requires PNP Sourcing Input Device)	PSSN8M23A

ATTENTION



Make sure all connectors and caps are securely tightened to properly seal the connections against leaks and maintain IP67 requirements.

Communicate With Your Module

I/O messages are sent to (consumed) and received from (produced) the I/O modules. These messages are mapped into the processor's memory. These I/O input modules produce 1 byte of input data (scanner Rx - status). They do not consume I/O data (scanner Tx).

Default Data Map for the Input Modules

PSSN8M8A, PSSN8M12A, PSSN8M23A,
PSSP8M8A, PSSP8M12A, PSSP8M23A

Message Size: 1 Byte

	7	6	5	4	3	2	1	0	
Produces (Scanner Rx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Channel Status

Where: 0 = OFF, 1 = ON

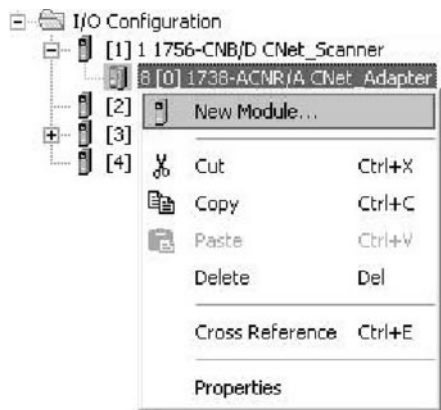
EDS File Requirements

The EDS files are available online at www.parker.com/pneu/isysNet.

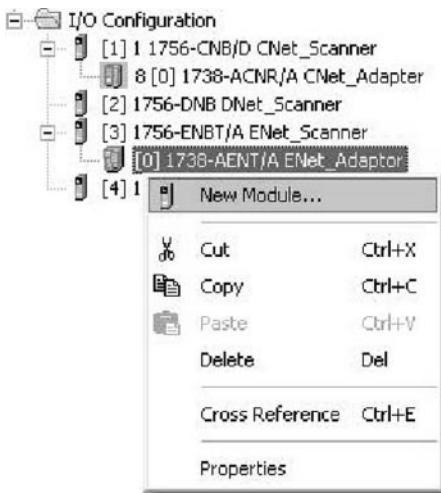
Add 24 VDC Input Modules to RSLogix 5000 I/O Configuration

To add your input modules to RSLogix 5000 I/O configuration, follow these steps:

- In RSLogix 5000:
 - For ControlNet, highlight the **PSSCNA** or **1738-ACNR** (**Shown**), right click and select **New Module**.

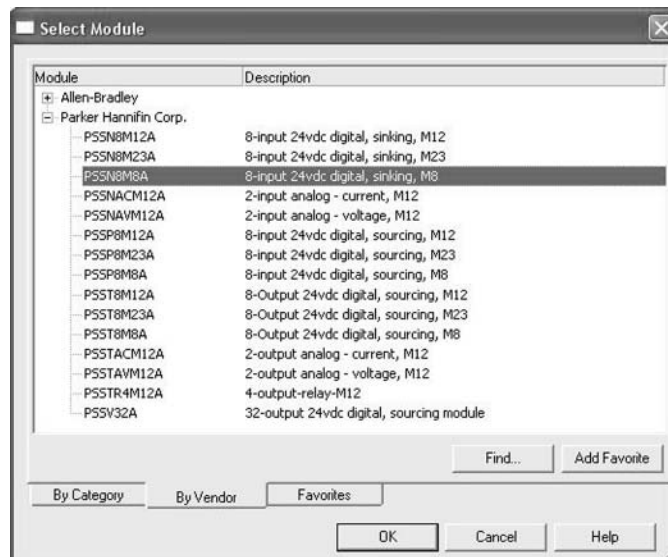


- For EtherNet/IP, highlight the **PSSCENA** or **1738-AENT** (**Shown**), right click and select **New Module**.

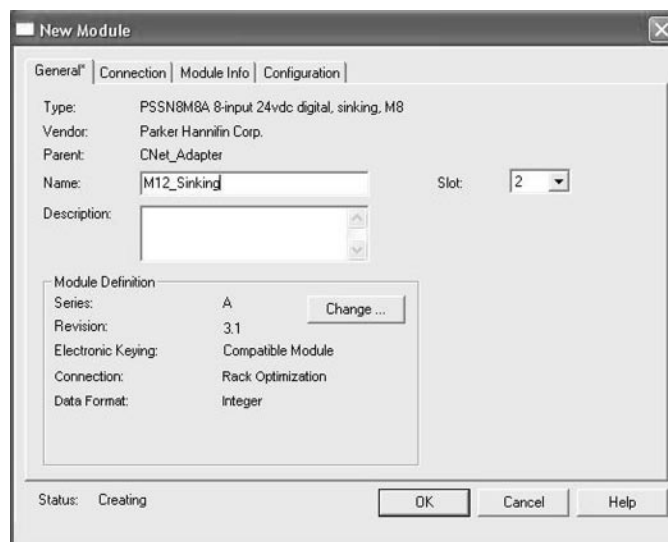


If your RSLogix 5000 is Version 15.X or greater:

- Choose the **PSSN8M8A** module from the list of Parker modules.



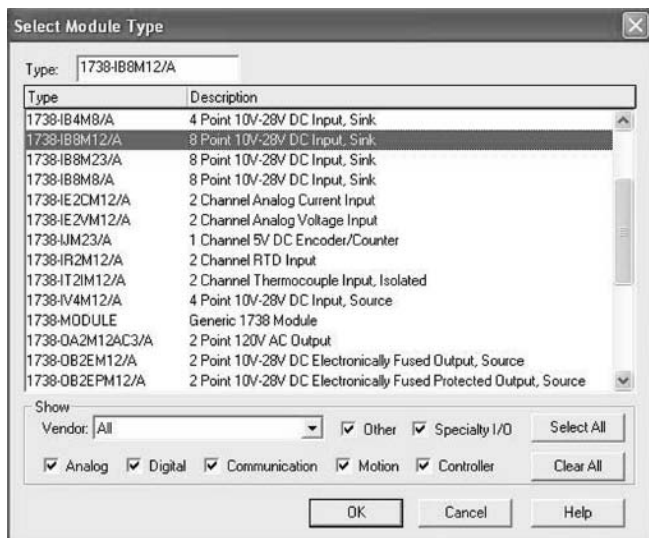
- Enter a name and click OK.



- Notice that the PSSN8M8A is now under the I/O configuration.

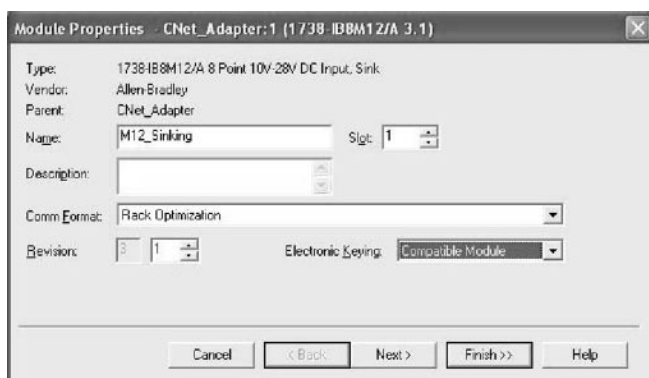
If your RSLogic 5000 is Version 13.X:

- Choose the equivalent Rockwell Automation module from the list of modules.



isysNet Modules	Equivalent Rockwell Automation 1738 ArmorPoint Modules
PSSN8M8A	1738-IB8M8
PSSN8M12A	1738-IB8M12
PSSN8M23A	1738-IB8M23
PSSP8M8A	1738-IV8M8
PSSP8M12A	1738-IV8M12
PSSP8M23A	1738-IV8M23

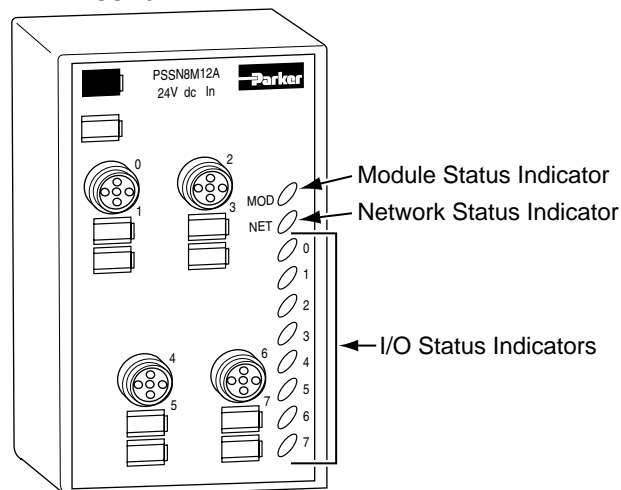
- Enter a name (optional), slot number, and communication format. Make sure to choose **Compatible Module for Electronic Keying** setting.



- Choose **Next** to set RPI.
- Choose **Finish**. Notice that the input module is now under the I/O configuration

Troubleshoot With the Indicators

PSSN8M12A



Indication	Probable Cause
Module Status	
Off	No power applied to device
Green	Device operating normally
Flashing Green	Device needs commissioning due to missing, incomplete, or incorrect configuration
Flashing Red	Recoverable fault
Red	Unrecoverable fault - may require device replacement
Flashing Red/Green	Device is in self-test

Indication	Probable Cause
Network Status	
Off	Device is not on line: - Device has not completed dup_MAC-id test. - Device not powered - check module status indicator.
Flashing Green	Device is on line but has no connections in the established state.
Green	Device is on line and has connections in the established state.
Flashing Red	One or more I/O connections in timed-out state.
Red	Critical link failure - failed communication device. Device detected error that prevents it from communicating on the network.
Flashing Red/Green	Communication faulted device - the device has detected a network access error and is in communication faulted state. Device has received and accepted an Identity Communication Faulted Request - long protocol message.

Indication	Probable Cause
I/O Status	
Off	Input is in the off state
Yellow	Input on

Specifications - Following are specifications for the digital input modules.

Digital Input Modules	
Inputs per Module	PSSN8M - 8 (1 group of 8) nonisolated, sinking PSSP8M - 8 (1 group of 8) nonisolated, sourcing
Voltage, Off-State Input, Maximum	5VDC
Voltage, On-State Input, Maximum Minimum Nominal	28.8VDC 10VDC 24VDC
Current, Off-State Input, Maximum	1.5 mA
Current, On-State Input, Maximum Minimum Nominal	5 mA 2 mA 4 mA @ 24VDC
Input Impedance, Maximum Nominal	4.7 kΩ 3.6 kΩ
Input Delay Time OFF to ON	0.5 ms hardware + (0-63 ms selectable ¹)
Input Delay Time, ON to OFF	0.5 ms hardware + (0-63 ms selectable ¹)
Input Point Density	2, 4, or 8
Field Power Bus Supply Voltage Range Nominal	10 to 28.8VDC 24VDC
Keyswitch Position	1
LED Indicators	2, 4, or 8 yellow input status, logic side 1 green/red network status, logic side 1 green/red module status, logic side
PointBus Current, Maximum	75 mA @ 5VDC
Power Dissipation, Maximum	PSSN8M - 1.6W @ 28.8VDC
Thermal Dissipation, Maximum	PSSN8M - 5.5 BTU/hr. @ 28.8VDC
Isolation Voltage (continuous-voltage withstand rating)	50V rms Tested at 1250VAC rms for 60s
Dimensions Imperial (Metric)	1.25H x 2.63W x 4.25D (31.75H x 66.80W x 107.95D)
Operating Temperature	IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): -20 to 60°C (-4 to 140°F)
Storage Temperature	IEC 60068-2-1 (Test Ab, Un-packaged Non-operating Cold), IEC 60068-2-2 (Test Bb, Un-packaged Non-operating Dry Heat), -40 to 85°C (-40 to 185°F)
Relative Humidity	IEC 60068-2-30 (Test Db, Un-packaged Non-operating Damp Heat): 5 to 95% non-condensing
Shock	IEC60068-2-27 (Test Ea, Unpackaged Shock): Operating 30g Non-operating 50g
Vibration	IEC60068-2-6 (Test Fc, Operating): 5g @ 10 to 500Hz
ESD Immunity	IEC 61000-4-2: 6kV contact discharges 8kV air discharges
Radiated RF Immunity	IEC 61000-4-3: 10V/m with 1kHz sine-wave 80%AM from 30MHz to 2000MHz 10V/m with 200Hz 50% Pulse 100%AM at 900Mhz 10V/m with 200Hz 50% Pulse 100%AM at 1890Mhz
EFT/B Immunity	IEC 61000-4-4: ±3kV at 5kHz on signal ports
Surge Transient Immunity	IEC 61000-4-5: ±1kV line-line(DM) and ±2kV line-earth(CM) on signal ports
Conducted RF Immunity	IEC 61000-4-6: 10Vrms with 1kHz sine-wave 80%AM from 150kHz to 80MHz
Emissions	CSPR 11: Group 1, Class A
Enclosure Type Rating	Meets IP65/66/67 (when marked)
Mounting Base Screw Torque	#8 screw, 7.5 in. lbs. in Aluminum, 16 in. lbs. in Steel
Weight Imperial (Metric)	0.64 lb. (0.29 kg)
Wiring Category ²	1 - on signal ports
Certifications: (when product is marked)	c-UL-us UL Listed Industrial Control Equipment, certified for US and Canada
	CE European Union 89/336/EEC EMC Directive, compliant with: EN 61000-6-4; Industrial Emissions EN 50082-2; Industrial Immunity EN 61326; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity C-Tick Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions

1. Input OFF to ON or ON to OFF delay is time from a valid input signal to recognition by the module.

2. Use this Conductor Category information for planning conductor routing. Refer to Publication E115P, "Industrial Automation Wiring and Grounding Guidelines".



Pneumatic Division
Richland, Michigan 49083

Installation & Service Instructions E107P

isysNet 24 VDC Output Modules,
Series A (PSST8M23A, PSST8M12A,
PSST8M8A)

ISSUED: December, 2006

Supersedes: June, 2005

Doc.# E107P, EN# 060961, Rev. 2

WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
- Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.
- Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.
- Medium must be moisture-free if ambient temperature is below freezing.
- Service according to procedures listed in these instructions.
- Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
- After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.
- Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.

Safety Guide

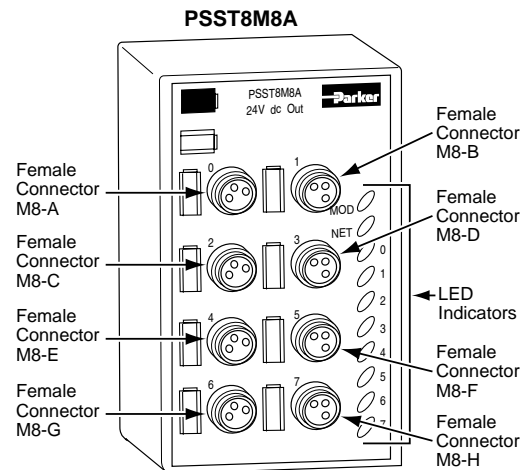
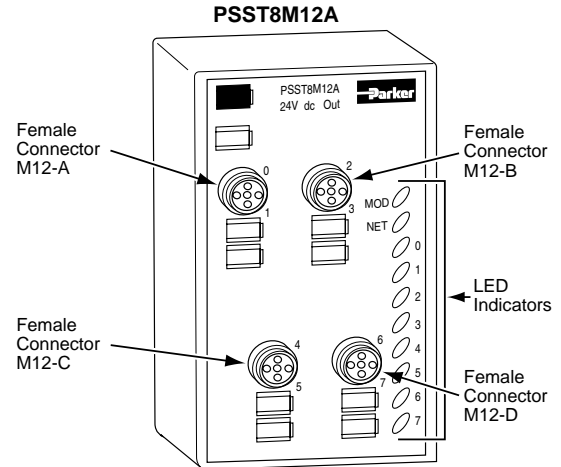
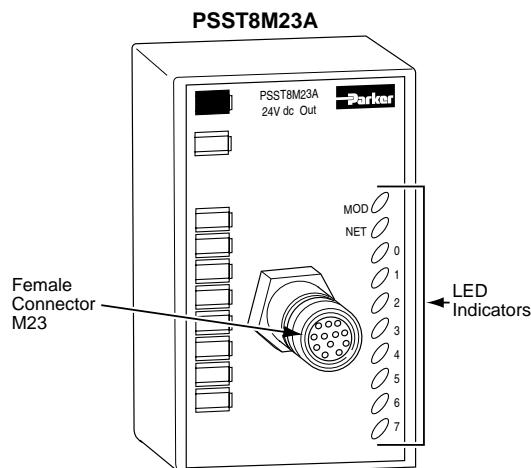
For more complete information on recommended application guidelines, see the Safety Guide section of Pneumatic Division catalogs or you can download the **Pneumatic Division Safety Guide** at: www.parker.com/safety

Introduction

Follow these instructions when installing, operating, or servicing the product.

isysNet 24 VDC Output Modules, Series A (PSST8M23A, PSST8M12A, PSST8M8A)

The sealed IP67 housing of these modules requires no enclosure. (Note that environmental requirements other than IP67 may require an additional appropriate housing.) I/O connectors are sealed M8 (pico) or M12 (micro) styles. The mounting base ships with the module. The PSST8M23A, PSST8M12A, and PSST8M8A modules are shown below.



WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application, including consequences of any failure and review the information concerning the product or systems in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

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IMPORTANT	Identifies information that is critical for successful application and understanding of the product.
ATTENTION	Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you:
	<ul style="list-style-type: none"> • Identify a Hazard • Avoid a Hazard • Recognize the Consequence
SHOCK HAZARD	Labels may be located on or inside the equipment to alert people that dangerous voltage may be present.
	
BURN HAZARD	Labels may be located on or inside the equipment to alert people that surfaces may be dangerous temperatures.
	

ATTENTION



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- If available, use a static-safe workstation.
- When not in use, store the equipment in appropriate static-safe packaging.

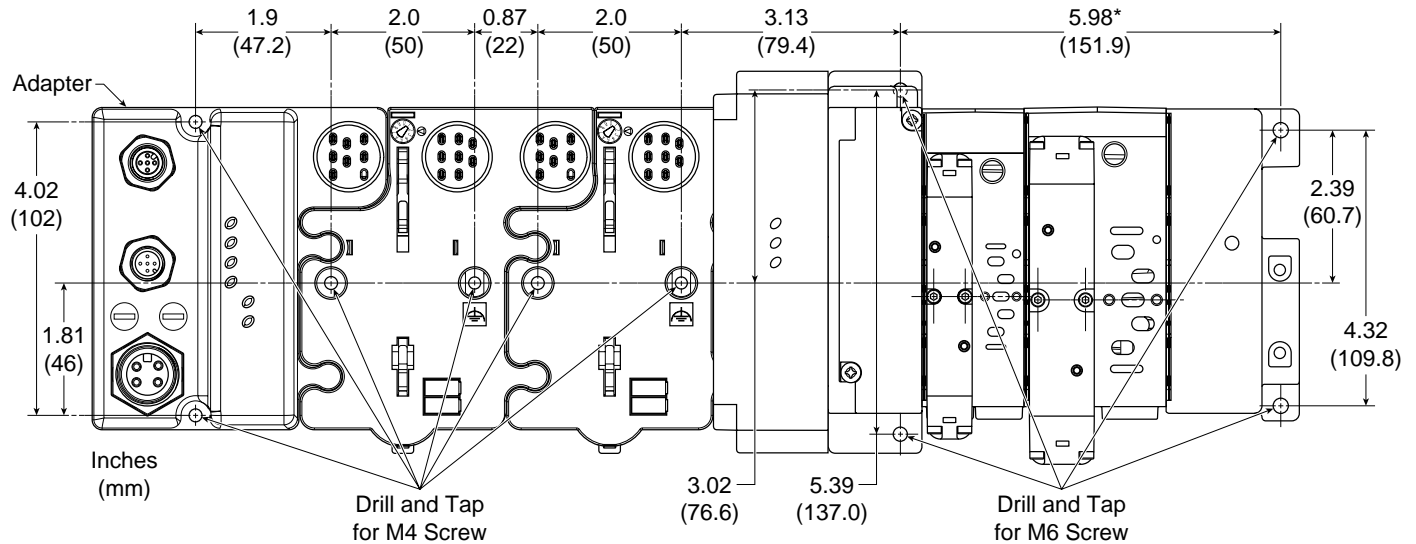
Mount the I/O Base

To mount the I/O base on a wall or panel, use the screw holes provided in the base.

IMPORTANT

The I/O module must be mounted on a grounded metal mounting plate or other conductive surface.

A mounting illustration for the base with an adapter is shown below.

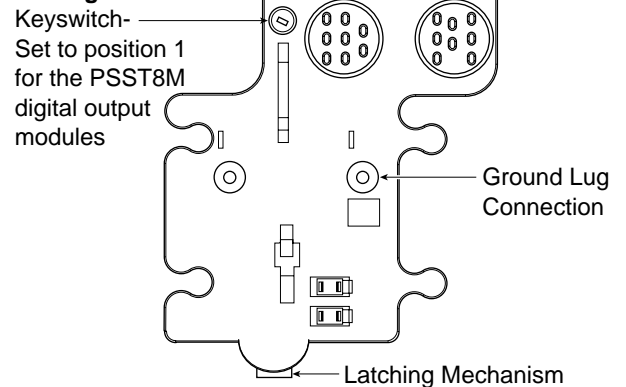


*Depending on the type and number of manifolds, this dimension may vary. Refer to Catalog 0600P-# for additional information.

Install the Mounting Base as Follows:

1. Lay out the required points as shown above in the drilling dimension drawing.
2. Drill the necessary holes for #8 (M4) machine or self-tapping screws.
3. Mount the base using #8 (M4) screws.
4. Ground the system using the ground lug connection. (The ground lug connection is also a mounting hole.)

Mounting Base

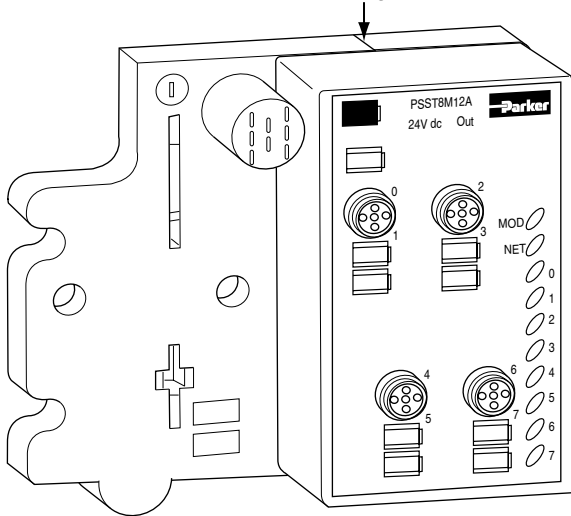


Install the Digital Output Module

To Install the Digital Output Module, Proceed as Follows:

1. Using a bladed screwdriver, rotate the keyswitch on the mounting base clockwise until the number 1 aligns with the notch in the base.
2. Position the module vertically above the mounting base. The module will bridge two bases.

Module Will Bridge Two Bases



3. Push the module down until it engages the latching mechanism. You will hear a clicking sound when the module is properly engaged. The locking mechanism will lock the module to the base.

Remove the Digital Output Module From the Mounting Base

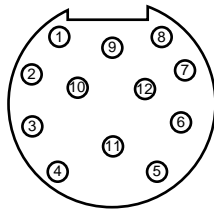
To Remove the Module from the Mounting Base:

1. Put a flat blade screwdriver into the slot of the orange latching mechanism.
2. Push the screwdriver toward the I/O module to disengage the latch. The module will lift up off the base.
3. Pull the module off of the base.

Wire the Output Modules

Following are wiring instructions for the digital output modules.

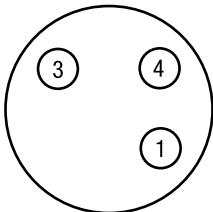
PSST8M23A



(view into connector)

- Pin 1 - Output 0
- Pin 2 - Output 1
- Pin 3 - Output 2
- Pin 4 - Output 3
- Pin 5 - Output 4
- Pin 6 - Output 5
- Pin 7 - Output 6
- Pin 8 - Output 7
- Pin 9 - Return (Com)
- Pin 10 - Return (Com)
- Pin 11 - 24VDC
- Pin 12 - Chassis

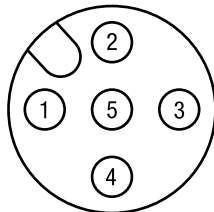
PSST8M8A



(view into connector)

- Pin 1 - 24VDC
- Pin 3 - Common
- Pin 4 - Output 0 (M8-A)
- Output 1 (M8-B)
- Output 2 (M8-C)
- Output 3 (M8-D)
- Output 4 (M8-E)
- Output 5 (M8-F)
- Output 6 (M8-G)
- Output 7 (M8-H)

PSST8M12A



(view into connector)

- Pin 1 - 24VDC
- Pin 2 - Output 1 (M12-A)
- Output 3 (M12-B)
- Output 5 (M12-C)
- Output 7 (M12-D)
- Pin 3 - Common
- Pin 4 - Output 0 (M12-A)
- Output 2 (M12-B)
- Output 4 (M12-C)
- Output 6 (M12-D)
- Pin 5 - No Connect

ATTENTION



Make sure all connectors and caps are securely tightened to properly seal the connections against leaks and maintain IP67 requirements.

Communicate With Your Module

I/O messages are sent to (consumed) and received from (produced) the I/O modules. These messages are mapped into the processor's memory. These I/O output modules produce 1 byte of input data (scanner Rx - status). They consume 1 byte of I/O data (scanner Tx).

Default Data Map for the Output Modules

PSST8M23A, PSST8M12A, PSST8M8A

Message Size: 1 Byte

	7	6	5	4	3	2	1	0	
Produces (Scanner Rx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Channel Status
Consumes (Scanner Tx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Output State

Where: Channel Status 0 = no error, 1 = error;
Output State 0 = OFF, 1 = ON

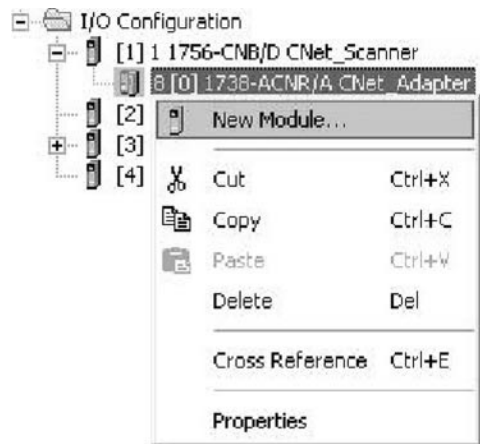
EDS File Requirements

The EDS files are available online at www.parker.com/pneu/isysnet.

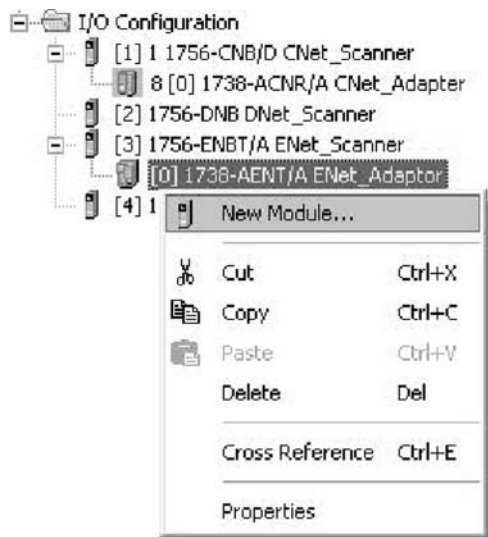
Add 24 VDC Output Modules to RSLogix 5000 I/O Configuration

To add your output modules to RSLogix 5000 I/O configuration, follow these steps:

- In RSLogix 5000:
 - For ControlNet, highlight the **PSSCNA** or **1738-ACNR** (**Shown**), right click and select **New Module**.

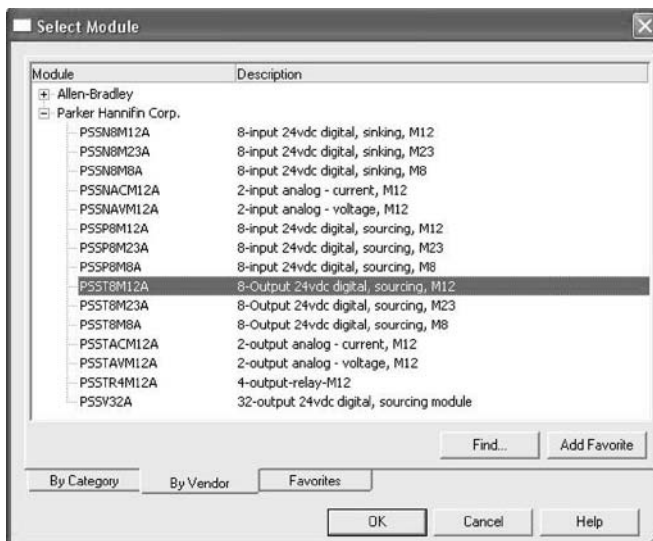


- For EtherNet/IP, highlight the **PSSCENA** or **1738-AENT** (**Shown**), right click and select **New Module**.

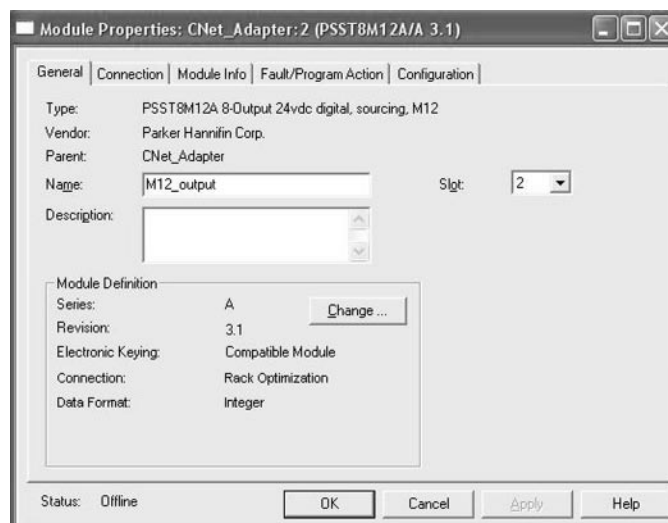


If your RSLogic 5000 is Version 15.X or greater:

- Choose the **PSST8M12A** module from the list of Parker Hannifin modules.



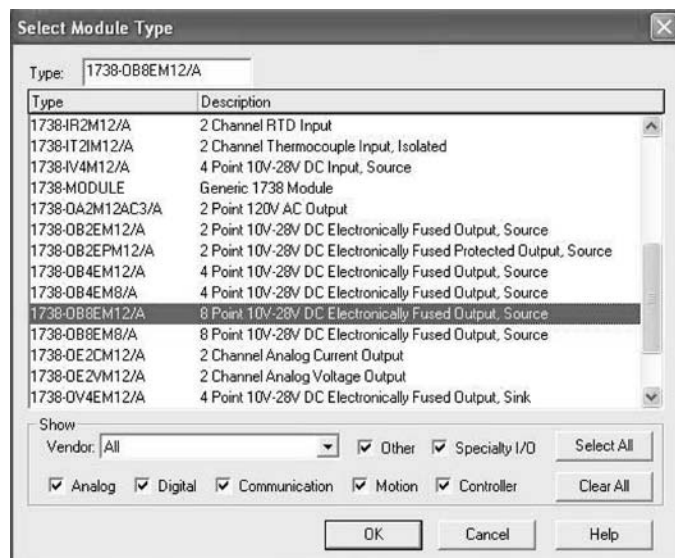
- Enter a name and click OK.



- Notice that the PSST8M12A is now under the I/O configuration.

If your RSLogic 5000 is Version 13.X:

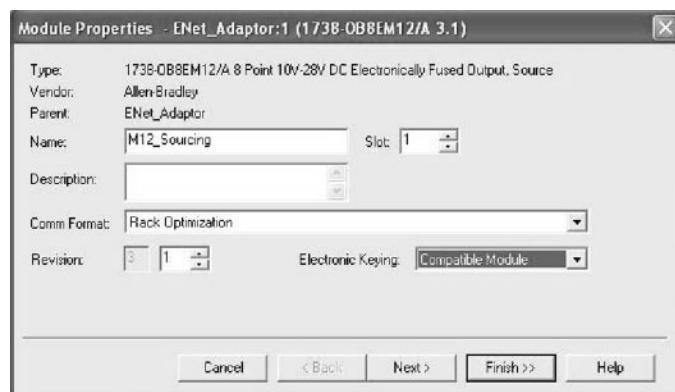
- Choose the equivalent Rockwell Automation module from the list of modules.



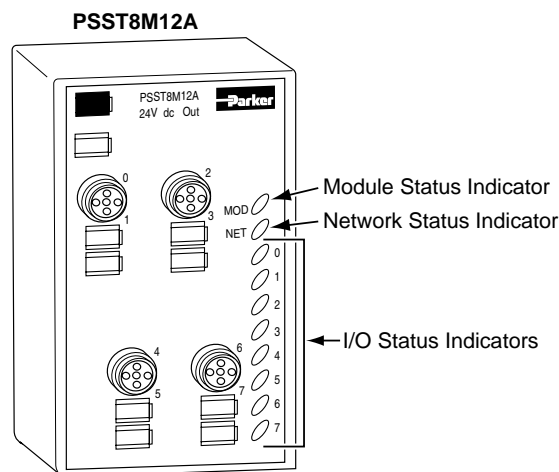
isysNet Modules	Equivalent Rockwell Automation 1738 ArmorPoint Modules
PSST8M8A	1738-OB8EM8
PSST8M12A	1738-OB8EM12
PSST8M23A	1738-OB8EM23*

* 1738-OB8EM23 profile will be available in RSLogix 5000 v15.
To use 1738-OB8EM23 in RSLogix 5000 v13, choose 1738-OB8EM12 profile and disable keying.

- Enter a name (optional), slot number, and communication format. Make sure to choose **Compatible Module for Electronic Keying** setting.



- Choose **Next** to set RPI.
- Choose **Finish**. Notice that the output module is now under the I/O configuration

Troubleshoot With the Indicators

Indication	Probable Cause
Module Status	
Off	No power applied to device
Green	Device operating normally
Flashing Green	Device needs commissioning due to missing, incomplete, or incorrect configuration
Flashing Red	Recoverable fault
Red	Unrecoverable fault - may require device replacement
Flashing Red/Green	Device is in self-test

Indication	Probable Cause
Network Status	
Off	Device is not on line: - Device has not completed dup_MAC-id test. - Device not powered - check module status indicator.
Flashing Green	Device is on line but has no connections in the established state.
Green	Device is on line and has connections in the established state.
Flashing Red	One or more I/O connections in timed-out state.
Red	Critical link failure - failed communication device. Device detected error that prevents it from communicating on the network.
Flashing Red/Green	Communication faulted device - the device has detected a network access error and is in communication faulted state. Device has received and accepted an Identity Communication Faulted Request - long protocol message.

Indication	Probable Cause
I/O Status	
Off	Output is inactive
Yellow	Output is active and under control
Flashing Red	Open circuit detection. No load. (Off-State only)
Red	Short circuit detected. (On-State only)

Specifications - Following are specifications for the digital output modules.

Digital Output Modules	
Outputs per Module	8 (1 group of 8) nonisolated, sourcing
Voltage Drop, On-State Output, Maximum	0.2VDC (sourcing modules) 0.7VDC (sinking module)
Voltage, Off-State Output, Maximum	28.8VDC
Voltage, On-State Output, Maximum	28.8VDC
Minimum	10VDC
Nominal	24VDC
Current Leakage, Off-State Output, Maximum	0.5 mA
Current, On-State Output Minimum	1.0 mA per channel
Output Current Rating	1.0 A per channel, not to exceed 3.0 A maximum per module
Output Delay Time OFF to ON, Maximum ¹	0.1 ms
Output Delay Time, ON to OFF, Maximum ¹	0.1 ms
Output Point Density	2, 4, 8
Output Surge Current, Maximum	2 A for 10 ms, repeatable every 3 seconds
External DC Power Supply Current	32 mA
External DC Power Supply Voltage Range	10 to 28.8VDC
External DC Power Supply Voltage Nominal	24VDC
Keyswitch Position	1
LED Indicators	2, 4, or 8 yellow/red output status, logic side 1 green/red network status, logic side 1 green/red module status, logic side
PointBus Current, Maximum	75 mA @ 5VDC
Power Dissipation, Maximum	PSST8M - 2.0W @ 28.8VDC
Thermal Dissipation, Maximum	PSST8M - 6.8 BTU/hr. @ 28.8VDC
Isolation Voltage (continuous-voltage withstand rating)	50V rms Tested at 1250VAC rms for 60s
Dimensions (includes I/O module and mounting base)	Inches (Millimeters) 4.72H x 2.82W x 1.65D (120H x 72W x 42D)
Operating Temperature	IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): -20 to 60°C (-4 to 140°F)
Storage Temperature	IEC 60068-2-1 (Test Ab, Un-packaged Non-operating Cold), IEC 60068-2-2 (Test Bb, Un-packaged Non-operating Dry Heat), -40 to 85°C (-40 to 185°F)
Relative Humidity	IEC 60068-2-30 (Test Db, Un-packaged Non-operating Damp Heat): 5 to 95% non-condensing
Shock	IEC60068-2-27 (Test Ea, Unpackaged Shock): Operating 30g Non-operating 50g
Vibration	IEC60068-2-6 (Test Fc, Operating): 5g @ 10 to 500Hz
ESD Immunity	IEC 61000-4-2: 6kV contact discharges 8kV air discharges
Radiated RF Immunity	IEC 61000-4-3: 10V/m with 1kHz sine-wave 80%AM from 30MHz to 2000MHz 10V/m with 200Hz 50% Pulse 100%AM at 900Mhz 10V/m with 200Hz 50% Pulse 100%AM at 1890Mhz
EFT/B Immunity	IEC 61000-4-4: ±3kV at 5kHz on signal ports
Surge Transient Immunity	IEC 61000-4-5: ±1kV line-line(DM) and ±2kV line-earth(CM) on signal ports
Conducted RF Immunity	IEC 61000-4-6: 10Vrms with 1kHz sine-wave 80%AM from 150kHz to 80MHz
Emissions	CSPR 11: Group 1, Class A
Enclosure Type Rating	Meets IP65/66/67 (when marked)
Mounting Base Screw Torque	#8 screw, 7.5 in. lbs. in Aluminum, 16 in. lbs. in Steel
Wiring Category ²	1 - on signal ports
Weight Imperial (Metric)	0.64 lb. (0.29 kg)
Certifications: (when product is marked)	c-UL-us UL Listed Industrial Control Equipment, certified for US and Canada CE European Union 89/336/EEC EMC Directive, compliant with: EN 61000-6-4; Industrial Emissions EN 50082-2; Industrial Immunity EN 61326; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity C- Tick Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions

1. OFF to ON or ON to OFF delay is time from a valid output "on" or "off" signal to output energization or de-energization.

2. Use this Conductor Category information for planning conductor routing. Refer to Publication E115P, "Industrial Automation Wiring and Grounding Guidelines".



Pneumatic Division
Richland, Michigan 49083

Installation & Service Instructions E100P

**isysNet 32 Point Valve Driver,
Series A (PSSV32A)**

ISSUED: December, 2006

Supersedes: June, 2005

Doc.# E100P, EN# 060961, Rev. 2

WARNING

- To avoid unpredictable system behavior that can cause personal injury and property damage:
- Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
- Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.
- Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.
- Medium must be moisture-free if ambient temperature is below freezing.
- Service according to procedures listed in these instructions.
- Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
- After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.
- Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.

Safety Guide

For more complete information on recommended application guidelines, see the Safety Guide section of Pneumatic Division catalogs or you can download the **Pneumatic Division Safety Guide** at: www.parker.com/safety

Introduction

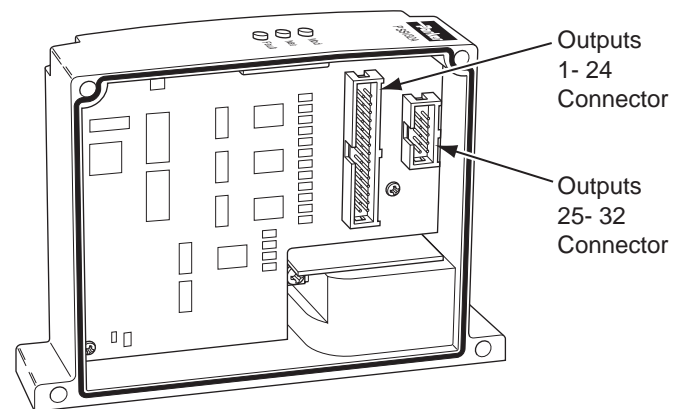
Follow these instructions when installing, operating, or servicing the product.

isysNet 32 Point Valve Driver, Series A (PSSV32A)

The sealed IP67 housing of these modules requires no enclosure. (Note that environmental requirements other than IP67 may require an additional appropriate housing.) The PSSV32A module is shown below.

The PSSV32A valve driver module provides an interface between the isysNet serial bus system and the Isys valve assembly. This module will always be the last module on the isysNet serial bus. It controls 32 digital outputs at 24VDC. Depending on valve selection, it can control up to 32 single solenoid valves or 16 double solenoid valves.

PSSV32A



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- Wear an approved grounding wriststrap.
- Do not touch connectors or pins on component boards.
- Do not touch circuit components inside the equipment.
- If available, use a static-safe workstation.
- When not in use, store the equipment in appropriate static-safe packaging.

Mount the I/O Base

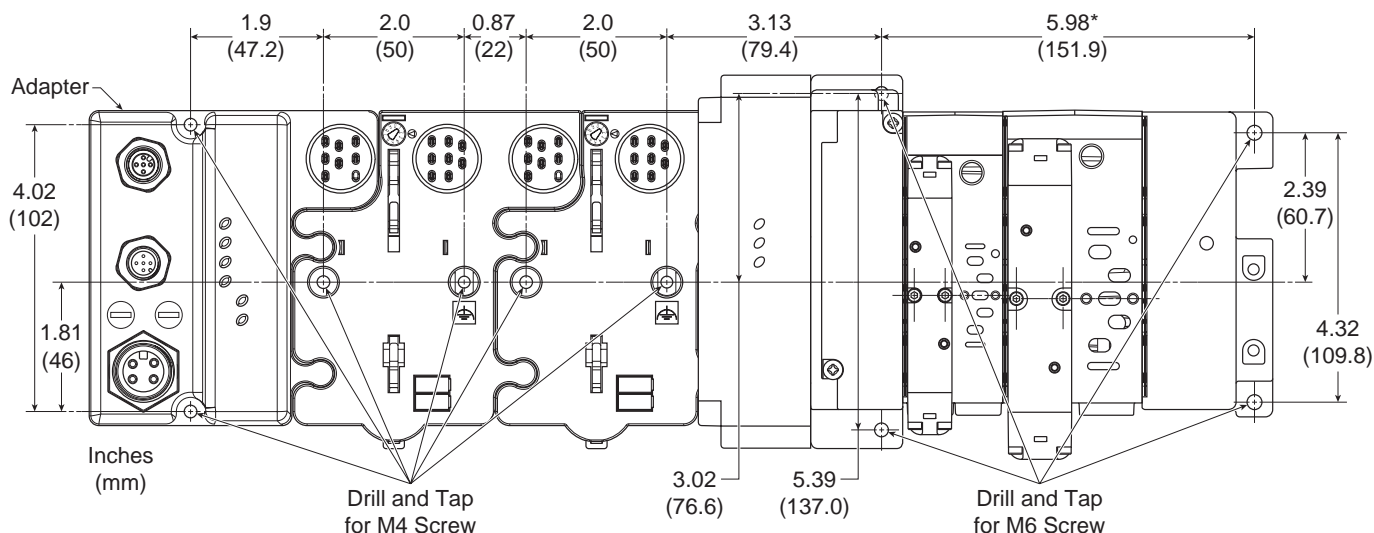
To mount the I/O base on a wall or panel, use the screw holes provided in the base.

IMPORTANT

The I/O module must be mounted on a grounded metal mounting plate or other conductive surface.

* Depending on the type and number of manifolds, this dimension may vary. Refer to Catalog 0600P-# for additional information.

A mounting illustration for the base with an adapter is shown below.



Install the 32 Point Valve Driver

To Install the 32 Point Valve Driver, Proceed as Follows:

1. Assemble the valve driver to the manifold interface plate using four M4 screws, torqued 11 to 13 in. lbs.
2. Plug the 32 point valve driver onto the previous mounting base or communication adapter.

Wire the 32 Point Valve Driver

Following are wiring instructions for the 32 point valve driver.

Use the appropriate harness assembly based on your manifold wiring/interconnect system.

Harness Assembly Kit Numbers

	1 to 24 Outputs	25 to 32 Outputs
HA, HB	PS5624P	PS5632P
H1, H2, H3	PS4024P	PS4032P

Plug the 2X15 connector into the valve driver module for 1-24 outputs. If you have more than 24 outputs, plug the 2X5 connector into the valve driver module for 25-32 outputs.

Plug the 2X10 and 1X10 connectors into the interconnect board in the valve manifold.

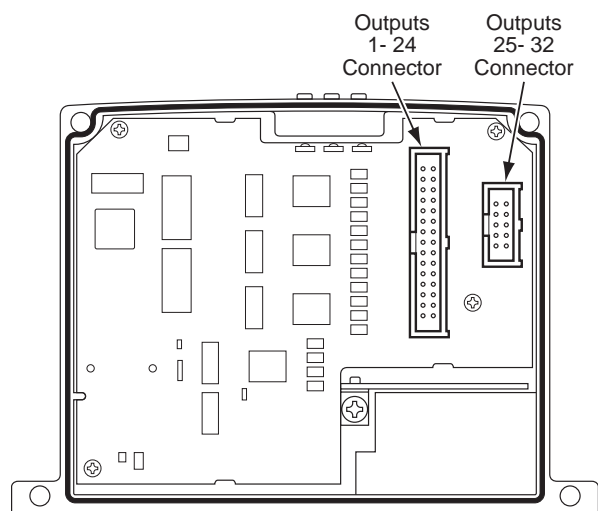
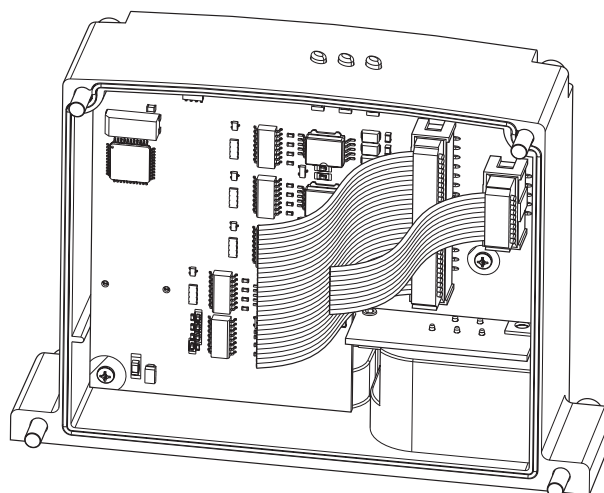
EDS File Requirements

The EDS file is available online at www.parker.com/pneu/isysNet.

ATTENTION



Make sure all four screws are securely tightened to properly seal the connections against leaks and maintain IP67 requirements.



Communicate With Your Module

I/O messages are sent to (consumed) and received from (produced) the I/O modules. These messages are mapped into the processor's memory. The 32 point valve driver produces 1 byte of input data (scanner Rx - status), and consumes 1 byte of I/O data (scanner Tx).

Default Data Map for the 32 Point Valve Driver

PSSV32A

Message Size: 1 Byte

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Produce 0	Output 7	Output 6	Output 5	Output 4	Output 3	Output 2	Output 1	Output 0
Produce 1	Output 15	Output 14	Output 13	Output 12	Output 11	Output 10	Output 9	Output 8
Produce 2	Output 23	Output 22	Output 21	Output 20	Output 19	Output 18	Output 17	Output 16
Produce 3	Output 31	Output 30	Output 29	Output 28	Output 27	Output 26	Output 25	Output 24
Produce 4	Fault 28-31	Fault 24-27	Fault 20-23	Fault 16-19	Fault 12-15	Fault 8-11	Fault 4-7	Fault 0-3
Consume 0	Output 7	Output 6	Output 5	Output 4	Output 3	Output 2	Output 1	Output 0
Consume 1	Output 15	Output 14	Output 13	Output 12	Output 11	Output 10	Output 9	Output 8
Consume 2	Output 23	Output 22	Output 21	Output 20	Output 19	Output 18	Output 17	Output 16
Consume 3	Output 31	Output 30	Output 29	Output 28	Output 27	Output 26	Output 25	Output 24

Setup the 32 Point Valve Driver in ControlNet

Step 1: Load 32 Point Valve Driver EDS file to RSLinx

- Download EDS file from www.parker.com/pneu/isysNet
- On your computer, follow **Start→Rockwell Software→RSLinx Tools→EDS Hardware Installation Tool** to load the EDS file to RSLinx

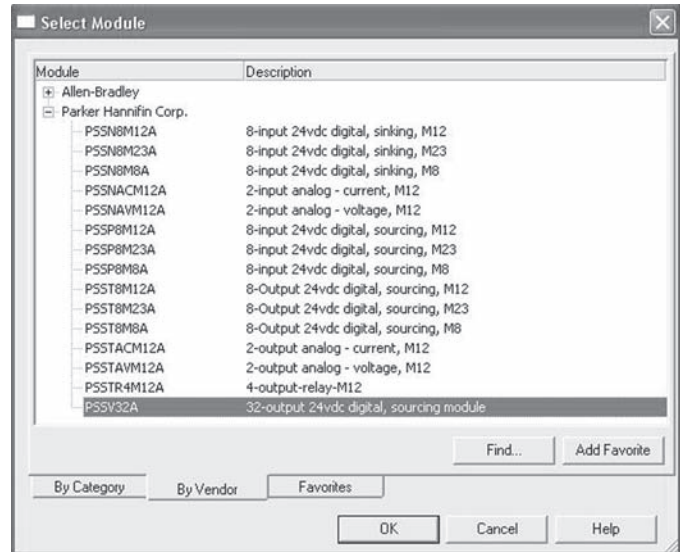
Step 2: Add Controller and Communication Module to the RSLogix 5000 I/O Configuration

- Add a controller and a communication module (isysNet PSSCNA or Rockwell 1738-ACNR) to I/O configuration. Reference pages 4-1 through 4-7 of Rockwell publication 1734-UM008 (follow www.rockwell.com→Support→Support Overview→Online manuals and literature→I/O→1734 POINT and 1734D POINT Block I/O and find POINT I/O ControlNet Adapter User Manual) for a similar setup procedure.

Step 3: Add 32 Point Valve Driver to RSLogix 5000 I/O Configuration.

If your RSLogix 5000 is Version 15.X or greater:

- Highlight the **PSSCNA** under I/O configuration, right click and select **New Module**.
- Choose the **PSSV32A** module from the list of Parker modules.



- Enter a name (optional) and click OK.

Setup the 32 Point Valve Driver in DeviceNet

Step 1: Load 32 Point Valve Driver EDS file to RSLinx

- Download EDS file from www.parker.com/pneu/isysNet
- On your computer, follow **Start→Rockwell Software→RSLinx Tools→EDS Hardware Installation Tool** to load the EDS file to RSLinx

Step 2: Configure the DeviceNet Scanner Subnet

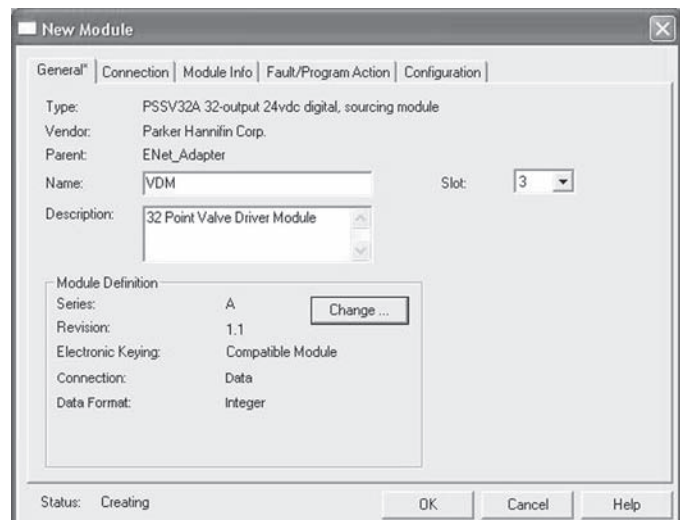
- Reference Chapter 4 of the isysNet DeviceNet Adapters User Manual PSS-UM001 for detailed information. Make sure to add PSSV32A to the DeviceNet Adapter's scanlist.

Step 3: Add the isysNet DeviceNet Adapter to the DeviceNet Scanner's Scanlist

- Reference Chapter 5 of the isysNet DeviceNet Adapters User Manual PSS-UM001 for detailed information.

Step 4: Use 32 Point Valve Driver in RSLogix 5000

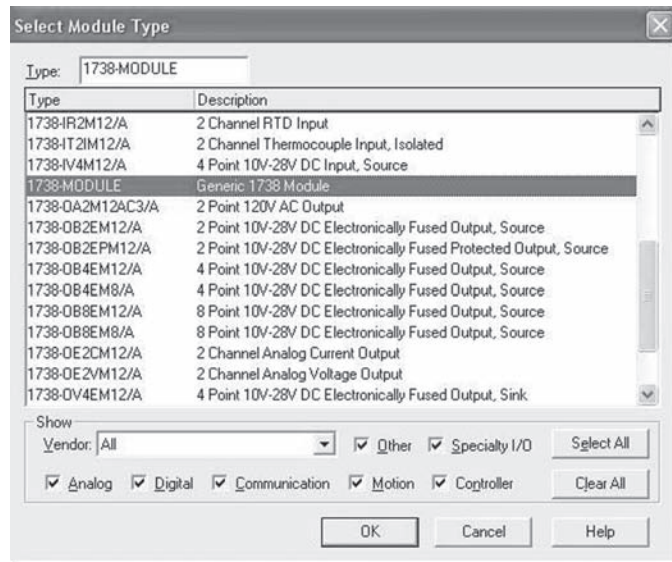
- Access PSSV32A data via DeviceNet Scanner in the ladder logic program.



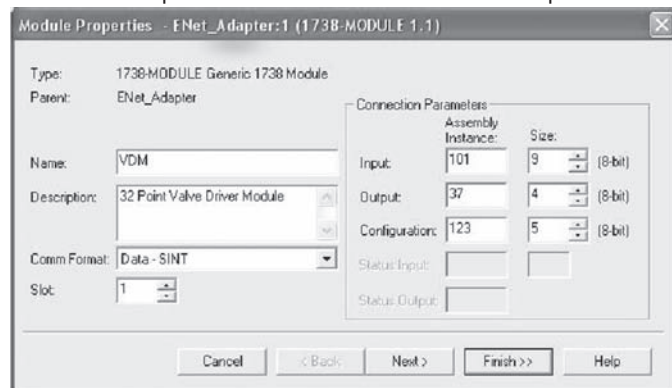
Notice that the **32 Point Valve Drive Module** is now under I/O Configuration.

If your RSLogix 5000 is Version 13.X:

- Highlight the **1738-ACNR** under I/O configuration, right click and select **New Module**.
- Choose the **Generic 1738** module from the list of Allen-Bradley modules.



- Enter a name (optional), an appropriate slot number and the connection parameters as shown in this screen capture.



- Choose **Next** to set RPI.
- Choose **Finish**. Notice that the 32 Point Valve Driver Module is now under the I/O configuration.

Step 4: Download the Program to the Controller and Configure the PSSCNA or 1738-ACNR Adapter.

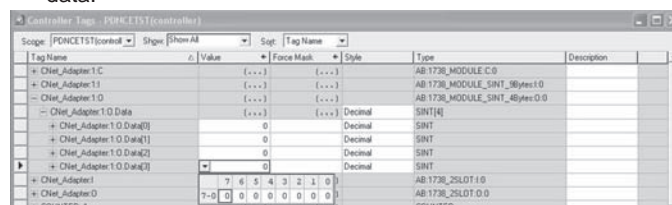
- Reference pages 4-11 through 4-15 of Rockwell publication 1734-UM008 for similar setup procedure.

Step 5: Schedule I/O Module Connections

- Reference pages 4-15 through 4-19 of Rockwell publication 1734-UM008 for similar setup procedure.

Step 6: Access Module Data via the PSSCNA or 1738-ACNR Adapter.

- Make sure the 32 outputs of PSSV32A appear in Controller Tags. Use the information in the ladder logic program to access module data.



- Reference pages 4-19 through 4-22 of Rockwell publication 1734-UM008 for similar information.

Setup the 32 Point Valve Driver in EtherNet/IP

Step 1: Load 32 Point Valve Driver EDS file to RSLinx

- Download EDS file from www.parker.com/pneu/isyNet
- On your computer, follow **Start→Rockwell Software→RSLinx Tools→EDS Hardware Installation Tool** to load the EDS file to RSLinx

Step 2: Set IP Address for EtherNet/IP Scanner and Adapter

- Set IP address using Rockwell BootP/DHCP utility for EtherNet/IP scanner and PSSCNA or 1738-AENT adapter. Reference pages 3-7 through 3-10 of Rockwell publication 1734-UM011 (follow www.rockwell.com→Support→Support Overview→Online manuals and literature→I/O→1734 POINT and 1734D POINT Block I/O and find POINT I/O Ethernet Adapter User Manual) for similar information.

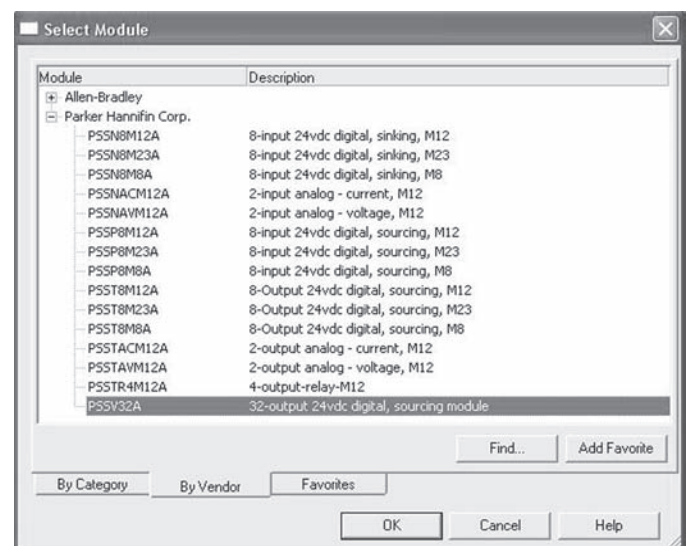
Step 3: Add EtherNet/IP Scanner and Adapter to RSLogix 5000 I/O configuration.

- Add EtherNet/IP scanner and PSSCNA or 1738-AENT adapter to I/O configuration. Reference pages 4-4 to 4-8 of Rockwell publication 1734-UM011 for similar information.

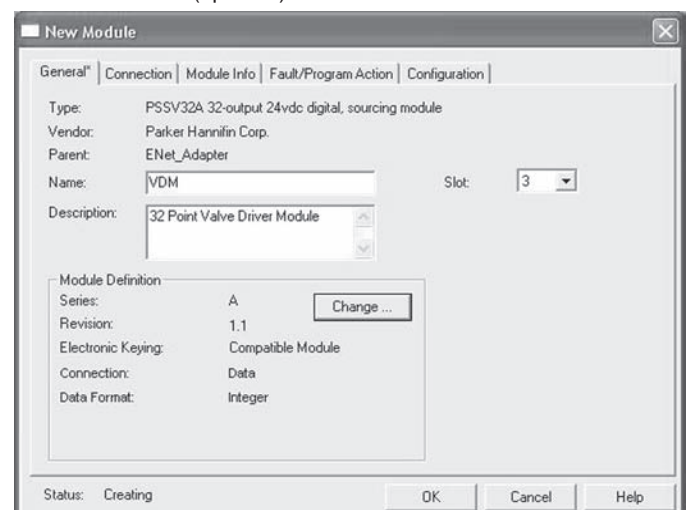
Step 4: Add 32 Point Valve Driver to RSLogix 5000 I/O Configuration.

If your RSLogix 5000 is Version 15.X or greater:

- Highlight the **PSSCNA** under I/O configuration, right click and select **New Module**.
- Choose the **PSSV32A** module from the list of Parker modules.



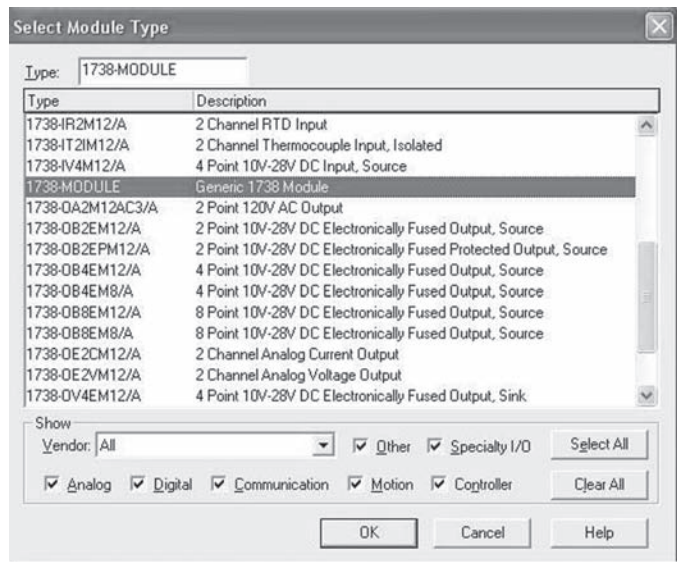
- Enter a name (optional) and click OK.



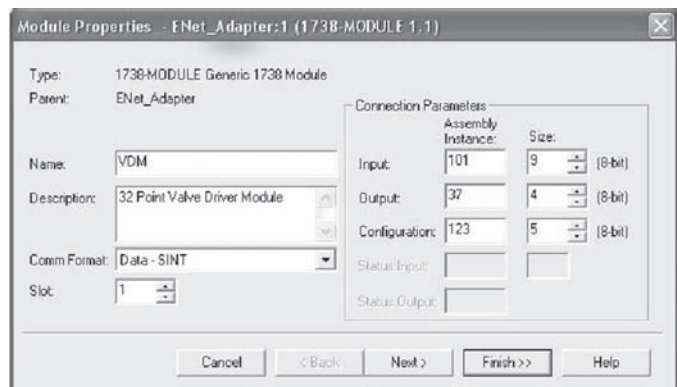
Notice that the **32 Point Valve Drive Module** is now under I/O Configuration.

If your RSLogic 5000 is Version 13.X:

- Highlight the **1738-AENT** under I/O configuration, right click and select **New Module**.
- Choose the **Generic 1738** module from the list of Allen-Bradley modules.



- Enter a name (optional), an appropriate slot number and the connection parameters as shown in this screen capture.



- Choose **Next** to set RPI.
- Choose **Finish**. Notice that the 32 Point Valve Driver Module is now under the I/O configuration.

Step 5: Access Module Data via the PSSCENA or 1738-AENT Adapter and Create Ladder Program.

- Make sure the 32 outputs of PSSV32A appear in Controller Tags. Use the information in the ladder logic program to access module data.

-	Ether_Adaptor_1	(...)	(...)	AB-1738_MODULE_SINT_0x010
-	Ether_Adaptor_10	(...)	(...)	AB-1738_MODULE_SINT_0x050
+/-	Ether_Adaptor_1.0 Data	(...)	(...)	SINT[4]
-	Ether_Adaptor_1.0 Data[0]	0	Decimal	SINT
-	Ether_Adaptor_1.0 Data[1]	0	Decimal	SINT
+/-	Ether_Adaptor_1.0 Data[2]	0	Decimal	SINT
-	Ether_Adaptor_1.0 Data[3]	0	Decimal	SINT
-	Ether_Adaptor_1.0 Data[3]0	0	Decimal	BOOL
-	Ether_Adaptor_1.0 Data[3]1	0	Decimal	BOOL
-	Ether_Adaptor_1.0 Data[3]2	0	Decimal	BOOL
-	Ether_Adaptor_1.0 Data[3]3	0	Decimal	BOOL
-	Ether_Adaptor_1.0 Data[3]4	0	Decimal	BOOL
-	Ether_Adaptor_1.0 Data[3]5	0	Decimal	BOOL
-	Ether_Adaptor_1.0 Data[3]6	0	Decimal	BOOL
-	Ether_Adaptor_1.0 Data[3]7	0	Decimal	BOOL
+/-	Ether_Adaptor_1.C	(...)	(...)	AB-1738_MODULE_C.0

- Reference pages 4-13 through 4-14 of Rockwell publication 1734-UM011 for similar information.

Step 6: Download the Program to the Controller

- Reference pages 4-13 through 4-14 of Rockwell publication 1734-UM011 for similar information.

Setup the 32 Point Valve Driver in Profibus

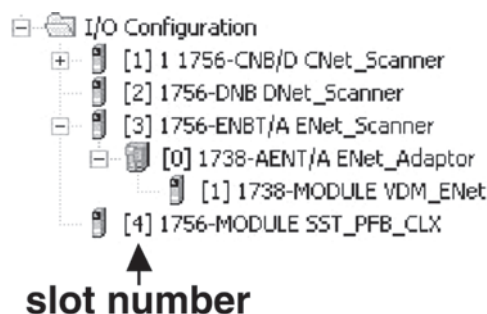
Step 1: Configure Valve Driver Module in SST Profibus Configuration Utility

Note: SST-PFB-CLX is used here for example. For different Profibus scanners, refer to appropriate documentation for setup information.

- Download GSD file from www.parker.com/pneu/isysNet
- In SST Profibus Configuration Utility, follow **Library→Add GSD** to load the GSD file to SST Profibus.
- In SST Profibus Configuration Utility, follow **Browse→Search for devices** to load the GSD file to SST Profibus
- Right click on the found device, follow **GSD files** and click on appropriate GSD for PSSV32A.
- Add PSSV32A as slave to SST-PFB-CLX master.
- Detailed information can be found in the SST-PFB-CLX User Guide (Ver. 1.4 715-0022), which is available on www.woodhead.com.

Step 2: Add SST Profibus Scanner in RSLogix 5000 I/O Configuration

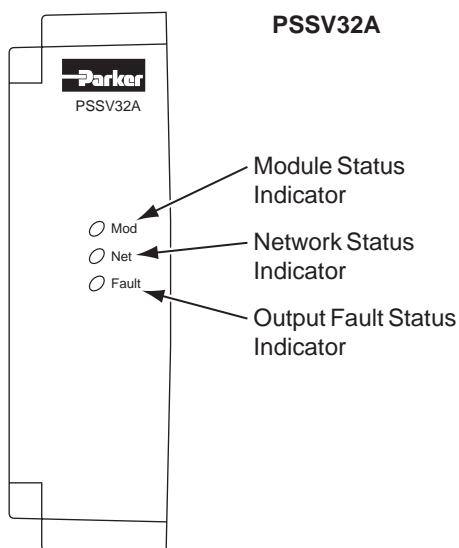
- Add SST-PFB-CLX scanner I/O configuration. Reference pages 36 to 39 of the SST-PFB-CLX User Guide, for detailed information.
- Notice that the SST-PFB-CLX scanner is now under the I/O configuration.



Step 3: Access Module Data via the SST-PFB-CLX Scanner and Create Ladder Program.

- Reference Chapter 7 of the SST-PFB-CLX User Guide for addressing information.

Troubleshoot With the Indicators



Indication	Probable Cause
Module Status	
Off	No power applied to device
Green	Device operating normally
Flashing Green	Device needs commissioning due to missing, incomplete, or incorrect configuration
Flashing Red	Recoverable fault
Red	Unrecoverable fault - may require device replacement
Flashing Red/Green	Device is in self-test

Indication	Probable Cause
Network Status	
Off	Device is not on line: - Device has not completed dup_MAC-id test. - Device not powered - check module status indicator.
Flashing Green	Device is on line but has no connections in the established state.
Green	Device is on line and has connections in the established state.
Flashing Red	One or more I/O connections in timed-out state.
Red	Critical link failure - failed communication device. Device detected error that prevents it from communicating on the network.
Flashing Red/Green	Communication faulted device - the device has detected a network access error and is in communication faulted state. Device has received and accepted an Identity Communication Faulted Request - long protocol message.

Indication	Probable Cause
Output Fault Status	
Off	Outputs operating normally
Red	Over current, short circuit or over temperature detected on one or more outputs. (On-State only)

Specifications — Following are specifications for the 32 point valve driver.

32 Point Valve Driver	
Outputs per Module	32, sourcing
Voltage Drop, On-State Output, Maximum	0.2VDC
Voltage, Off-State Output, Maximum	28.8VDC
Voltage, On-State Output, Maximum Minimum Nominal	28.8VDC 10VDC 24VDC
Output Current Rating	200 mA per channel, not to exceed 6.0 A per module
Output Surge Current, Maximum	0.5 A for 10 ms, repeatable every 3 seconds
Current Leakage, Off-State Output, Maximum	0.1 mA
Current, On-State Output Minimum	200 mA per channel
Output Delay Time OFF to ON, Maximum ¹	0.1 ms
Output Delay Time, ON to OFF, Maximum ¹	0.1 ms
External DC Power Supply Voltage Range	10 to 28.8VDC
External DC Power Supply Voltage Nominal	24VDC
General Specifications	
LED Indicators	1 output status 1 green/red network status, logic side 1 green/red module status, logic side
PointBus Current, Maximum	75 mA @ 5VDC
Operating Temperature	IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): -20 to 60°C (-4 to 140°F)
Storage Temperature	IEC 60068-2-1 (Test Ab, Un-packaged Non-operating Cold), IEC 60068-2-2 (Test Bb, Un-packaged Non-operating Dry Heat), -40 to 85°C (-40 to 185°F)
Relative Humidity	IEC 60068-2-30 (Test Db, Un-packaged Non-operating Damp Heat): 5 to 95% non-condensing
Shock	IEC60068-2-27 (Test Ea, Unpackaged Shock): Operating 30g Non-operating 50g
Vibration	IEC60068-2-6 (Test Fc, Operating): 5g @ 10 to 500Hz
ESD Immunity	IEC 61000-4-2: 6kV contact discharges 8kV air discharges
Radiated RF Immunity	IEC 61000-4-3: 10V/m with 1kHz sine-wave 80%AM from 30MHz to 2000MHz 10V/m with 200Hz 50% Pulse 100%AM at 900Mhz 10V/m with 200Hz 50% Pulse 100%AM at 1890Mhz
EFT/B Immunity	IEC 61000-4-4: ±3kV at 5kHz on signal ports
Surge Transient Immunity	IEC 61000-4-5: ±1kV line-line(DM) and ±2kV line-earth(CM) on signal ports
Conducted RF Immunity	IEC 61000-4-6: 10Vrms with 1kHz sine-wave 80%AM from 150kHz to 80MHz
Emissions	CSPR 11: Group 1, Class A
Enclosure Type Rating	Meets IP65/66/67 (when marked)
Mounting Base Screw Torque	#8 screw, 7.5 in. lbs. in Aluminum, 16 in. lbs. in Steel
Wiring Category ²	1 - on signal ports
Certifications: (when product is marked)	c-UL-us UL Listed Industrial Control Equipment, certified for US and Canada CE European Union 89/336/EEC EMC Directive, compliant with: EN 61000-6-4; Industrial Emissions EN 50082-2; Industrial Immunity EN 61326; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity C- Tick Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions

1. OFF to ON or ON to OFF delay is time from a valid output "on" or "off" signal to output energization or de-energization.

2. Use this Conductor Category information for planning conductor routing. Refer to Publication E115P, "Industrial Automation Wiring and Grounding Guidelines".



Allen-Bradley

POINT I/O EtherNet/IP Adapter Module

1734-AENT

User Manual

**Rockwell
Automation**

Important User Information

Because of the variety of uses for the products described in this publication, those responsible for the application and use of these products must satisfy themselves that all necessary steps have been taken to assure that each application and use meets all performance and safety requirements, including any applicable laws, regulations, codes and standards. In no event will Rockwell Automation be responsible or liable for indirect or consequential damage resulting from the use or application of these products.

Any illustrations, charts, sample programs, and layout examples shown in this publication are intended solely for purposes of example. Since there are many variables and requirements associated with any particular installation, Rockwell Automation does not assume responsibility or liability (to include intellectual property liability) for actual use based upon the examples shown in this publication.

Allen-Bradley publication SGI-1.1, *Safety Guidelines for the Application, Installation and Maintenance of Solid-State Control* (available from your local Rockwell Automation office), describes some important differences between solid-state equipment and electromechanical devices that should be taken into consideration when applying products such as those described in this publication.

Reproduction of the contents of this copyrighted publication, in whole or part, without written permission of Rockwell Automation, is prohibited.

Throughout this publication, notes may be used to make you aware of safety considerations. The following annotations and their accompanying statements help you to identify a potential hazard, avoid a potential hazard, and recognize the consequences of a potential hazard:

WARNING



Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.

ATTENTION



Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss.

IMPORTANT

Identifies information that is critical for successful application and understanding of the product.

Allen-Bradley, ControlLogix, and POINT I/O are trademarks of Rockwell Automation.

Ethernet is a trademark of Digital Equipment Corporation, Intel, and Xerox Corporation.

RSLinx is a trademark of Rockwell Software.

Windows NT is a trademark of Microsoft Corporation.

What this Preface Contains

This preface describes how to use this manual. The following table lists where to find specific information within this chapter.

For information about	See page
Who Should Use This Manual	P-1
Common Techniques Used in This Manual	P-1
How To Use This Manual	P-2
About the Example Applications	P-2
System Components	P-3
Where to Find More Information	P-4
Terminology	P-6

Who Should Use This Manual

This manual is intended for control engineers and technicians who are installing, configuring, and maintaining an EtherNet/IP control system that communicates with POINT I/O through a 1734-AENT adapter. We assume you have a good understanding of Ethernet and the TCP/IP protocol.

ATTENTION



You must use Series C POINT I/O modules with the 1734-AENT adapter. Series A or B POINT I/O modules will not work with this adapter.

Common Techniques Used in This Manual

The following conventions are used throughout this manual:

- Numbered lists provide sequential steps.
- Bulleted lists provide information, not procedural steps.
- Information in **bold** text identifies menu windows, screen options, screen names, or areas of the screen, such as dialog boxes, status bars, radio buttons, and parameters.



The screen captures shown in this manual are pictures of the software's actual screens.

TIP

This symbol identifies helpful tips.

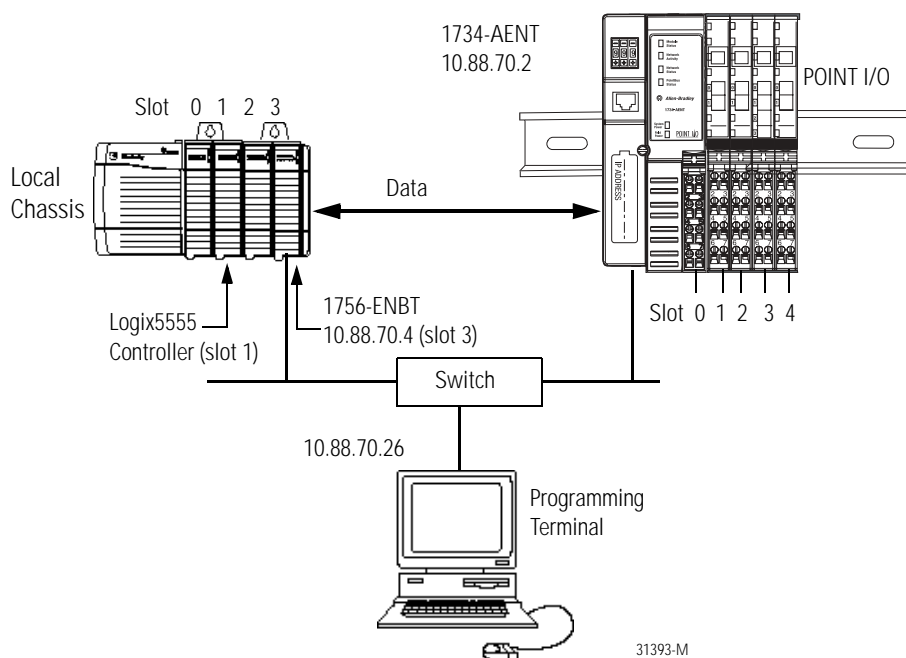
How To Use This Manual

This manual contains an overview of the 1734-AENT adapter. It describes how to install and configure the adapter, and provides examples showing how to use the adapter to communicate with POINT I/O over an EtherNet/IP network.

About the Example Applications

This manual presents two example applications that demonstrate the procedures for configuring and communicating with POINT I/O using the 1734-AENT adapter. The example applications are intended as building blocks to help you get your own system up and running. We recommend that you set up and run the example applications and use them as guides.

Here is the type of system you'll be setting up:



System Components

We used the following components for the example applications. You will need the same or similar components to set up your own control system using PONT I/O on EtherNet/IP.

Quantity	Product Name	Catalog Number	Part Number
	Hardware		
1	POINT I/O EtherNet/IP Adapter	1734-AENT	
1	POINT I/O 24V dc Sink Output Module	1734-OV4E/C	
1	POINT I/O Relay Output Module	1734-OW2/C	
1	DIN Rail	199-DR1 or equivalent	
1	ControlLogix chassis	1756-A4, (or -A7, -A13, -A17)	
1	ControlLogix power supply	1756-PA72, (or -PB72)	
1	Logix5555 controller	1756-L55	
1	ControlLogix EtherNet/IP Bridge Module	1756-ENBT	
1	Personal computer that supports RSLogix 5000 software	Any appropriate model running Windows NT 4.0, Service Pack 6A or higher	
1	Ethernet switch	Refer to manufacturer's specifications	
1	24V dc power supply	1734-EP24DC	
	Associated media and connectors as needed		
	Software		
1	RSLink communications software, V2.31.00 or higher	9355-WAB, -WABOEM, -WABC	
1	RSLogix 5000 programming software, V11.11 or higher	9324-RLD300ENE	

Where to Find More Information

Refer to the following Rockwell publications as needed for additional help when setting up and using your EtherNet/IP network.

For information about	See this publication	Publication number
Using EtherNet/IP for industrial control	EtherNet/IP Performance and Application Guide	ENET-AP001
EtherNet/IP media	EtherNet/IP Media Planning and Installation Guide	ENET-IN001
Ethernet communication interface modules	Ethernet Communication Interface Module Installation Instructions	1756-5.3
	Ethernet Communication Interface Module User Manual	1756-6.5.1
	Ethernet Communication Interface Module Installation Instructions	1756-IN053
	Ethernet Communication Interface Module User Manual	1756-UM051
	Ethernet Communication Interface Module Release Notes	1756-RN053
ControlLogix chassis	ControlLogix Chassis Installation instructions	1756-IN080 (Series B)
ControlLogix power supplies	ControlLogix Power Supplies Installation Instructions	1756-5.67 (PA72/PB72) 1756-5.78 (PA75/PB75)
Logix5555 programmable controllers	Logix5555 Controller User Manual	1756-UM523
SoftLogix5800 Controller	SoftLogix5800 User Manual	1789-UM002 (L10, L30, L60) 1789-UM001 (SL5, SL51, SL52)
ControlLogix EtherNet/IP bridge module with firmware version 2.3 or higher	ControlLogix EtherNet/IP Bridge Module Installation Instructions	1756-IN019
	ControlLogix EtherNet/IP Bridge Module User Manual	1756-UM050
RSLogix 5000 programming software	Getting Results with RSLogix 5000, version 3.2.1 or higher	9399-RLD300GR
RSLinx communications software	RSLinx Lite User's Guide	9399-WAB32LUG
1734-AENT Adapter	POINT I/O EtherNet/IP Adapter Installation Instructions	1734-IN590
POINT I/O DeviceNet Adapter	POINT I/O Quick Start	1734-QS001
POINT I/O digital and analog modules and PointBLOCK I/O modules	POINT I/O Digital and Analog Modules and PointBLOCK I/O Modules User Manual	1734-UM001
POINT I/O input and output modules	POINT I/O Technical Data	1734-TD002
POINT I/O interface modules	POINT I/O RS-232 ASCII Module User Manual	1734-UM009
	POINT I/O RS-232 ASCII Module Installation Instructions	1734-IN588
POINT I/O expansion power supply	POINT I/O 24V dc Expansion Power Supply Installation Instructions	1734-IN058
POINT I/O field potential distributor	POINT I/O Field Potential Distributor Installation Instructions	1734-IN059
POINT I/O input modules	POINT I/O 120V ac Input Module Installation Instructions	1734-IN010
	POINT I/O Input Module Installation Instructions	1734-IN051
POINT I/O input analog modules	POINT I/O 2-Input Analog Module Installation Instructions	1734-IN053
	POINT I/O 2 Voltage Input Analog Module Installation Instructions	1734-IN001
POINT I/O encoders/counter modules	POINT I/O Encoders/Counter Module User Manual	1734-UM006
	POINT I/O 5V Encoders/Counter Module Installation Instructions	1734-IN005
	POINT I/O 24V Encoders/Counter Module Installation Instructions	1734-IN006

For information about	See this publication	Publication number
POINT I/O 22V ac input module	POINT I/O 220V ac Input Module Installation Instructions	1734-IN008
POINT I/O RTD input module	POINT I/O RTD Input Module Installation Instructions	1734-IN012
POINT I/O isolated thermocouple input module	POINT I/O Isolated Thermocouple Input Module	1734-IN011
POINT I/O thermocouple and RTD input module	Thermocouple and RTD Input Module User Manual	1734-UM004
POINT I/O IV2 and IV4 input module	POINT I/O Input Module Installation Instructions	1734-IN052
POINT I/O 120/220V ac Output module	POINT I/O 120/220V ac Output Module Installation Instructions	1734-IN009
POINT I/O protected output module	POINT I/O Protected Output Module Installation Instructions	1734-IN056
	POINT I/O Protected Output Module Installation Instructions (OB2EP)	1734-IN586
POINT I/O current output analog module	POINT I/O 2 Current Output Analog Module Installation Instructions	1734-IN054
POINT I/O voltage output analog module	POINT I/O 2 Voltage Output Analog Module Installation Instructions	1734-IN002
POINT I/O protected sink output module	POINT I/O Protected Sink Output Module Installation Instructions	1734-IN585
POINT I/O 2 relay output module	POINT I/O 2 Relay Output Module Installation Instructions (OX2)	1734-IN587
	POINT I/O 2 Relay Output Module Installation Instructions (OW2)	1734-IN055
POINT I/O synchronous serial interface absolute encoder module	POINT I/O Synchronous Serial Interface Absolute Encoder Module	1734-UM007
POINT I/O cold junction compensation wiring base assembly	POINT I/O Cold Junction Compensation Wiring Base Assembly	1734-IN583
POINT I/O wiring base assembly	POINT I/O Wiring Base Assembly Installation Instructions	1734--IN013
Very high speed counter module	POINT I/O 24V dc Very High Speed Counter Module	1734-IN003
	POINT I/O 5V dc Very High Speed Counter Module	1734-IN004
	Very High Speed Counter Module User Manual	1734-UM003
RSLink	RSLink Getting Results Guide	LINX-GR001

TIP

Many of the above publications are available online from The Automation Bookstore and Manuals On-line:

<http://www.theautomationbookstore.com>

<http://www.ab.com/manuals/>.

TIP

Rockwell Software products contain extensive tutorials and help screens. We recommend that you use the tutorials and help screens to learn about these products.

For more information about Rockwell Software products, visit the Rockwell Software internet site:

<http://www.software.rockwell.com>.

Terminology

Refer to the table below for the meaning of common terms.

This term	Means
BootP	BootP (Bootstrap Protocol) is a low-level protocol that provides configurations to other nodes on a TCP/IP network. BootP configuration files let you automatically assign IP addresses to an Ethernet module (you can also obtain Subnet masks and gateway addresses from BootP).
bridge	A node between two similar communication subnets where protocol translation is minimal.
CIP	Control and Information Protocol, the EtherNet/IP application layer uses the “producer/consumer” networking model. In this model one producer broadcasts (multicasts) the data once to all the consumers. All consumers see the data simultaneously and may choose whether to consume (receive) the data or not. Delivery time is consistent, no matter how many consumers there are.
connection	The communication mechanism from the controller to another module in the control system, usually used to exchange I/O data.
consumer	A destination device in the CIP networking model. See CIP.
CSMA/CD	Carrier Sense Multiple Access/Collision Detection is the access method used in Ethernet. When a device wants to gain access to the network, it checks to see if the network is quiet (senses the carrier). If it is not, it waits a random amount of time before retrying. If the network is quiet and two devices access the line at exactly the same time, their signals collide. When the collision is detected, they both back off and each waits a random amount of time before retrying.
determinism	The ability to predict when information will be delivered. Important in time critical applications.
DHCP	<p>The Dynamic Host Configuration Protocol is an Internet protocol, similar to BootP, for automating the configuration of computers that use TCP/IP. DHCP can be used to automatically assign IP addresses, to deliver IP stack configuration parameters, such as the subnet mask and default router, and to provide other configuration information, such as the addresses for printer, time and news servers.</p> <p>The 1734-AENT factory default is DHCP enabled. Upon powerup, the module sends a message containing its hardware address to any DHCP server on the network. The server(s) replies by sending a message with an appropriate IP address for the adapter. The adapter responds by acknowledging to a server that it will use the offered IP address.</p>
DNS	The Domain Name System is a hierarchical, distributed method of organizing the name space of the Internet. The DNS administratively groups hosts into a hierarchy of authority that allows addressing and other information to be widely distributed and maintained. A big advantage to the DNS is that using it eliminates dependence on a centrally-maintained file that maps host names to addresses.
Ethernet	A physical layer standard using Carrier Sense Multiple Access with Collision Detection (CSMA/CD) methods.
EtherNet/IP	Ethernet Industrial Protocol applies a common application layer (CIP) over Ethernet by encapsulating messages in TCP/UDP/IP.

This term	Means
Ethernet network	A local area network designed for the high-speed exchange of information between computers and related devices.
explicit messaging	Non-time critical messaging used for device configuration and data collection, such as downloading programs or peer-to-peer messaging between two PLCs.
full duplex	A mode of communication that allows a device to send and receive information at the same time, effectively doubling the bandwidth.
fully qualified domain name	A Fully Qualified Domain Name (FQDN) is a domain name that includes all higher level domains relevant to the entity named. If you think of the DNS as a tree-structure with each node having its own label, a Fully Qualified Domain Name for a specific node would be its label followed by the labels of all the other nodes between it and the root of the tree. For example, for a host, a FQDN would include the string that identifies the particular host, plus all domains of which the host is a part, up to and including the top-level domain (the root domain is always null). For example, PARIS.NISC.SRI.COM is a Fully Qualified Domain Name for the host at 192.33.33.109.
gateway	A module or set of modules that allows communications between nodes on dissimilar networks.
hardware address	Each Ethernet device has a unique hardware address (sometimes called a MAC address) that is 48 bits. The address appears as six digits separated by colons (i.e., xx:xx:xx:xx:xx:xx). Each digit has a value between 0 and 255 (0x00 to 0xFF). This address is assigned in the hardware and cannot be changed. The hardware address is required to identify the device if you are using a BOOTP utility.
host name	<p>The Host Name is the unique name for a computer within its domain. It's always the first element of a full name, and, with its domain and top-level domain suffix, creates the unique name of that computer on the Internet. For example, let's say a trading website is www.trading.com. The Host Name is "www", which is not unique on the web, but is unique within the trading domain.</p> <p>The Host Name can also refer to the Fully Qualified Domain Name (FQDN), or in this example, www.trading.com. Both naming methods seem to be used interchangeably in various documents. For the purposes of this document, the Host Name will refer to the FQDN, or as in this example, www.trading.com.</p>
hub	A central connecting device that joins devices together in a star configuration. Hubs are generally not suitable for use in I/O control systems, since they are time critical applications that cannot tolerate lost packets.
implicit messaging	Real time messaging of I/O data.
IP	Internet Protocol that provides the routing mechanism for messages. All messages contain not only the address of the destination station, but the address of a destination network, which allows messages to be sent to multiple networks within an organization or around the world.
IP address	A 32-bit identification number for each node on an Internet Protocol network. These addresses are represented as four sets of 8-bit numbers (numbers from 0 to 255), with decimals between them. Each node on the network must have a unique IP address.

This term	Means
latency	The time between initiating a request for data and the beginning of the actual data transfer.
multicast	In the CIP producer/consumer model one producer multicasts (broadcasts) the data once to all the consumers.
producer	The source of information in the CIP networking model. See CIP.
rack optimized	A physical and logical collection of application modules.
subnet mask	An extension of the IP address that allows a site to use a single net ID for multiple networks.
switch	A network device that cross connects devices or network segments. A switch provides each sender/receiver the full network bandwidth (2x in full duplex mode), reduces collisions, and increases determinism.
TCP	The Transport Control Protocol is a more reliable but slower transport protocol than UDP. It is used for explicit (not time critical) messaging in EtherNet/IP.
TCP/IP	The Transmission Control Protocol/Internet Protocol is a transport-layer protocol (TCP) and a network-layer protocol (IP) commonly used for communication within networks and across internetworks.
transaction	An exchange of request and data and response and data.
UDP	The User Datagram Protocol is a transport protocol that provides a very simple but fast capability to send datagrams between two devices. It is used for I/O (implicit) messaging in EtherNet/IP.

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About the 1734-AENT Adapter

What This Chapter Contains

This chapter provides an overview of the 1734-AENT POINT I/O EtherNet/IP adapter, its primary features, and how to use it. You will need to understand the concepts discussed in this chapter to configure your adapter and use it in an EtherNet/IP control system. The following table lists where to find specific information in this chapter.

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ATTENTION



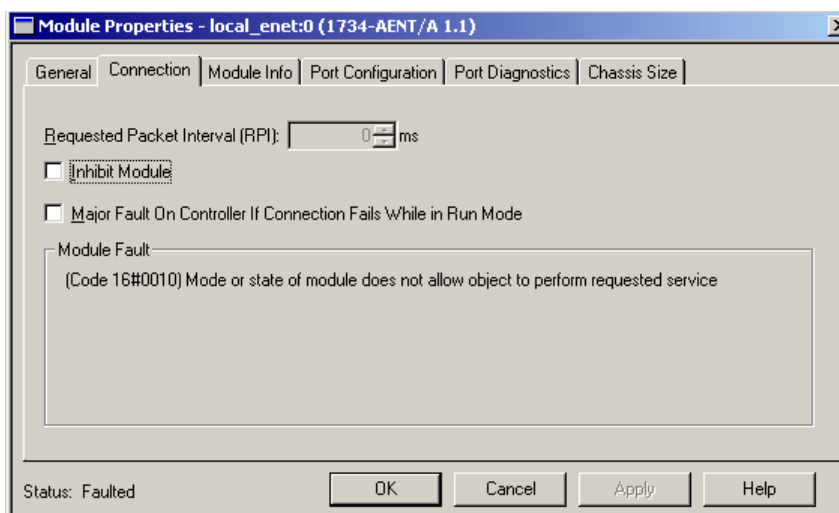
You must use Series C POINT I/O modules with the 1734-AENT adapter. Series A or B POINT I/O modules will not work with this adapter.

Important Adapter Considerations

Before you begin using your 1734-AENT, please note the following important considerations.

Set the Chassis Size

The 1734-AENT POINT I/O adapter for EtherNet/IP requires its chassis size to be configured before any I/O connections can be made. The default setting for the chassis size is 1 slot which represents the adapter by itself. You must set the chassis size to a number equaling 1 slot for the adapter plus 1 slot for each I/O module present in the adapter's backplane (e.g., the adapter plus 4 I/O modules will use a chassis size of 5). The adapter stores this chassis size setting in non-volatile storage. When the adapter's non-volatile chassis size does not match the actual number of modules present on its backplane, the adapter will not make any I/O connections and the following error will occur.



Adapter replacement

It is important to note that during a connection request from the controller, the chassis size setting for a 1734-AENT is not communicated to the adapter. This chassis size must always be set using a separate operation. This includes situations when an adapter is being replaced. The adapter will not make any I/O connections until it has been configured with the appropriate chassis size.

Empty Slots and RIUP Situations

The POINT I/O system does not have the ability to detect an empty terminal base. Because of this, there are numerous situations in which you can potentially configure a system that is unusable or one that exercises unintended control. In an attempt to address these situations, you must observe the following rules for POINT I/O system construction and the removal and reinsertion of modules.

- **A correct POINT I/O system does not have any empty terminal bases.**
- **After power up, the adapter will not run any I/O until the number of modules comprising the “chassis” equals the stored “chassis size”.** Because the adapter cannot detect empty terminal bases, it cannot assume any safe operation until there is a “match” between the number of modules indicating their presence in the chassis and what the adapter has saved in non-volatile memory. Actual module identification (i.e., electronic keying) will be done when connection establishment requests are received from the controller(s).
- **A module removed under power will not disrupt operation of the other I/O modules.** When a module is removed, the adapter will determine what has changed. Whenever a module with an active connection is removed from the POINT I/O system, the adapter will indicate this by flashing the PointBus Status LED red and report a minor recoverable fault.
- **If more than one contiguous module is removed under power, connections to all modules in the contiguous missing module set will be disallowed until all modules are replaced.** Because the adapter cannot detect an empty base, it does not know the physical positioning of the modules until all the missing modules are replaced.
- **If a module separating two sets of contiguous missing modules is removed, the two sets merge into a single set.** All the modules must be replaced before connections are permitted to any module in the set.
- **If modules of different types are removed and returned to the wrong locations, attempts to connect to these modules will fail during verification of the electronic ID (providing that keying has not been disabled).**
- **If modules of the same type are removed and returned to the wrong locations, they will accept connections from the controller(s) and be reconfigured with the correct data once they pass their electronic keying check.**
- **The above mentioned removal and return situations exist whether the system is under power or not.** If the system is under power, the situation arises immediately. If the system is not under power, the situation arises in the next power cycle.

Power Up a System For the First Time

When POINT I/O is powered for the first time, the adapter must assign addresses to every module in the backplane. POINT I/O modules all ship configured at the same address. Therefore, at first power up, it is expected that all but one module on the backplane will exhibit a solid red Module Status LED. One by one the adapter will reset these modules and address them appropriately. The amount of time that this operation takes is proportional to the size of your POINT I/O system.

Adapter Features

The 1734-AENT adapter's features include:

- use of EtherNet/IP messages encapsulated within standard TCP/UDP/IP protocol
- common application layer with ControlNet and DeviceNet
- interfacing via Category 5 rated twisted pair cable
- half/full duplex 10 Mbit or 100 Mbit operation
- DIN rail mounting
- communication to and from other POINT I/O modules on the same DIN rail
- communication supported by RSLinx software
- IP address assigned via standard BootP or DHCP tools
- I/O configuration via RSLogix 5000 software
- no network scheduling required
- no routing tables required
- supports connections from multiple controllers simultaneously

Hardware/Software Compatibility

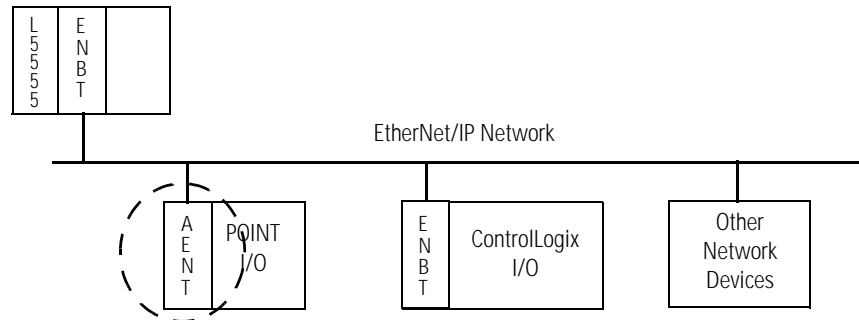
The 1734-AENT adapter and the applications described in this manual are compatible with the following firmware versions and software releases. Contact Rockwell Automation if you need software or firmware upgrades to use this equipment.

Product	Firmware Version/ Software Release
1734-AENT Adapter	1.xx or higher
1756-ENBT	2.3 or higher
Logix 5555 Controller	11 or higher
RSLogix 5000 software	11.11 or higher
RSLink software	2.3.1 or higher

What the Adapter Does

The 1734-AENT adapter performs two primary tasks:

1. Control of real time I/O data (also known as “implicit messaging”). The 1734-AENT adapter serves as a bridge between POINT I/O modules and the network.



2. Support of messaging data for configuration and programming information (also known as “explicit messaging.”).

Use of the Common Industrial Protocol (CIP)

The 1734-AENT adapter uses the Common Industrial Protocol (CIP). CIP is the application layer protocol specified for EtherNet/IP, the Ethernet Industrial Protocol, as well as for ControlNet and DeviceNet. It is a message-based protocol that implements a relative path to send a message from the “producing” device in a system to the “consuming” devices.

The producing device contains the path information that steers the message along the proper route to reach its consumers. Since the producing device holds this information, other devices along the path simply **pass** this information; they do not need to **store** it.

This has two significant benefits:

- You do not need to configure routing tables in the bridging modules, which greatly simplifies maintenance and module replacement.
- You maintain full control over the route taken by each message, which enables you to select alternative paths for the same end device.

Understand the Producer/Consumer Model

The CIP “producer/consumer” networking model replaces the old source/destination (“master/slave”) model. The producer/consumer model reduces network traffic and increases speed of transmission. In traditional I/O systems, controllers poll input modules to obtain their input status. In the CIP system, input modules are not polled by a controller. Instead, they produce (“multicast”) their data either upon a change of state (COS) or periodically. The frequency of update depends upon the options chosen during configuration and where on the network the input module resides. The input module, therefore, is a producer of input data and the controller is a consumer of the data.

The controller can also produce data for other controllers to consume. The produced and consumed data is accessible by multiple controllers and other devices over the EtherNet/IP network. This data exchange conforms to the producer/consumer model.

Specify the Requested Packet Interval (RPI)

The RPI is the update rate specified for a particular piece of data on the network. The RPI can be specified for the adapter and include all of the I/O modules communicating through it (using a rack optimized connection) or specified for a particular module (using direct connection). When you add a module or an adapter to the I/O configuration of a controller, you must enter the RPI as a parameter. This value specifies how often to produce the data for that device. For example, if you specify an RPI of 50 ms, it means that every 50ms the device should send its data to the controller or the controller should send its data to the device.

RPIs are only used for devices that exchange data. For example, a ControlLogix EtherNet/IP bridge module in the same chassis as the controller does not require an RPI because it is not a data-producing member of the system; it is used only as a bridge to remote racks.

Support of Rack Optimized and Direct Connections

The 1734-AENT adapter supports both direct and rack optimized connections. A direct connection is a real-time data transfer link between the controller and whatever module occupies the slot that the configuration data references. Direct connection messaging occurs at a cyclic rate specified by the RPI during configuration. A rack optimized connection is a grouping of data

from more than one I/O module into a single block of data sent over a single connection at the same data rate.

Rack optimized connections reduce the total number of connections needed to transfer data when using many I/O modules in a system. The following example illustrates the benefit of rack optimized connections.

Assume you have set up a system that contains 8 discrete I/O modules interfaced to a 1734-AENT adapter. If you use direct connections to transfer data to each of these I/O modules, you need 8 connections to transfer all of the data, one to each of the 8 I/O modules. If you use a rack-optimized connection to transfer the data, you only need a single connection – the connection to the 1734-AENT adapter.

IMPORTANT

Although rack optimized connections offer an efficient way to use resources, there are a few limitations on their use:

- You can only use rack optimized connections to send data to and from discrete I/O modules. Analog or speciality I/O requires direct connections.
 - All data is sent at the same time at the RPI rate of the 1734-AENT adapter.
-

See the **EtherNet/IP Performance and Application Guide**, publication number ENET-AP001, for more information on connections.

Mix Rack Optimized and Direct Connections

You can mix communication formats for different I/O modules communicating through the same adapter. I/O modules set up to use rack optimization will communicate at the rate of the RPI configured for the 1734-AENT adapter. I/O modules configured for direct communication will communicate at their own set RPIs and ignore the 1734-AENT adapter's RPI.

What's Next?

The following chapter describes how to physically install the 1734-AENT adapter and connect it to the EtherNet/IP network.

Install the 1734-AENT Adapter

What This Chapter Contains This chapter describes how to physically install the 1734-AENT adapter on the DIN rail and connect it to the EtherNet/IP network. The following table lists where to find specific information.

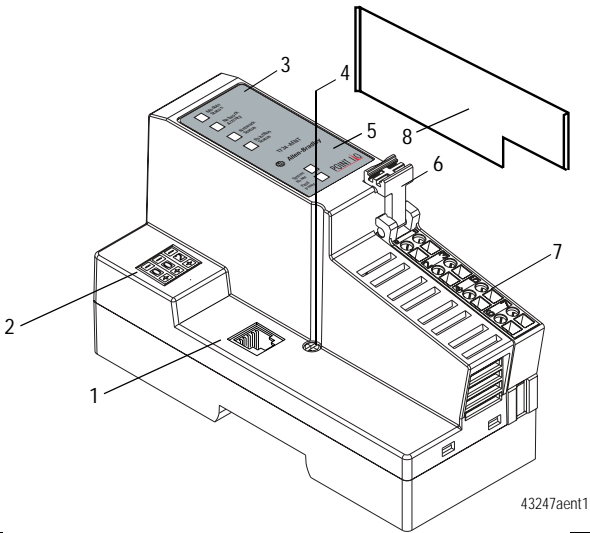
Topic	See Page
Identify Module Components	2-2
Mount the Adapter on a DIN Rail Before Installing Modules	2-2
Mount (or Replace) EtherNet/IP Adapter to an Existing System	2-3
Wiring	2-4
Mounting Dimensions	2-5

ATTENTION

You must use Series C POINT I/O modules with the 1734-AENT adapter. Series A or B POINT I/O modules will not work with this adapter.

Identify Module Components

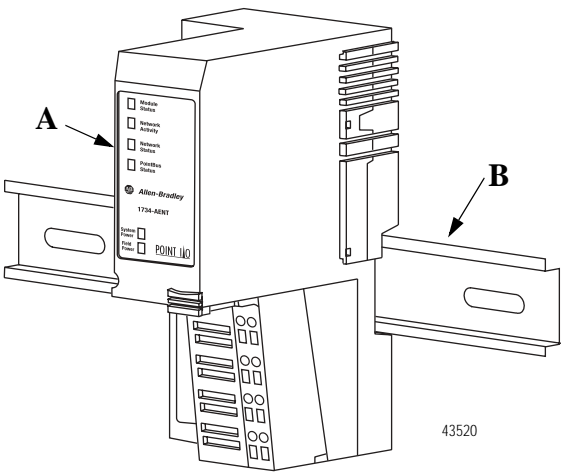
Use the following illustration to identify the external features of the POINT I/O EtherNet/IP adapter.



	Description		Description
1	Ethernet Network RJ45 Connector	5	System Power and Field Power Indicators
2	Network Address Thumbwheel	6	Removable Terminal Block (RTB) Handle
3	Indicators - Module Status, Network Activity, Network Status, and PointBus Status	7	Removable Terminal Block (RTB)
4	DIN Rail Locking Screw (orange)	8	Safety Endcap

Mount the Adapter on a DIN Rail Before Installing Modules

Use the following procedure to mount the adapter on a new system before any I/O modules have been installed.



1. Position the adapter (A) vertically above the DIN rail (B).
2. Press down firmly to install the adapter on the DIN rail. The locking mechanism will lock the adapter to the DIN rail.

3. Set the network address thumbwheel switches to the desired value (see **Set the Network Address** on page 3--6 in the next chapter).

WARNING

If you connect or disconnect the Ethernet cable with power applied to this module or any device on the network, an electrical arc can occur. This could cause an explosion in hazardous location installations.

Be sure that power is removed or the area is nonhazardous before proceeding.

4. Slide the safety end cap up to remove it. This exposes the backplane and power interconnections.

ATTENTION

Do not discard the adapter's end cap. Use this end cap to cover the exposed interconnections on the last mounting base on the DIN rail. Failure to do so could result in equipment damage or injury from electric shock.

Mount (or Replace) EtherNet/IP Adapter to an Existing System

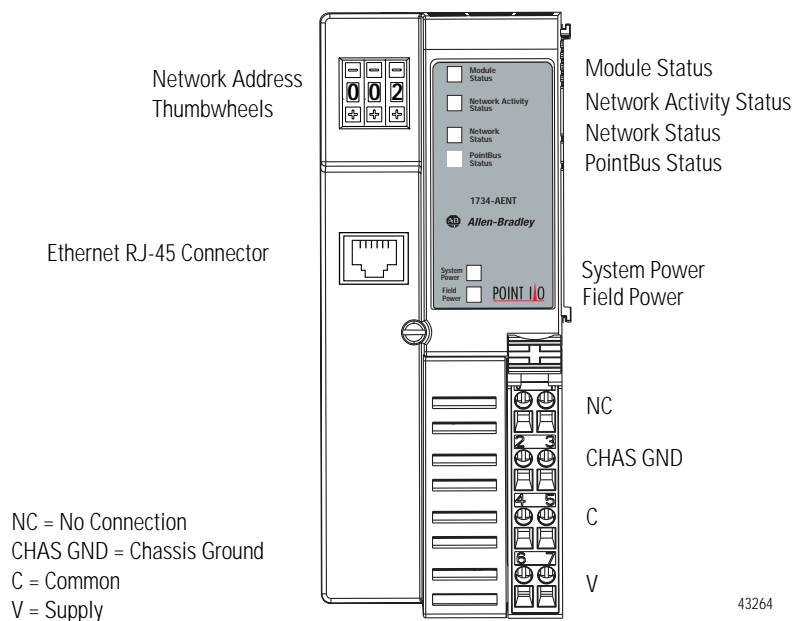
Follow the steps below to mount (or replace) an Ethernet adapter.

1. Remove the existing adapter (if there is one) from the DIN rail as follows:
 - a. Pull up on the RTB removal handle to remove the terminal block.
 - b. Disconnect the Ethernet connector from the adapter.
 - c. Remove the adjacent module from its base.
 - d. Use a small bladed screwdriver to rotate the DIN rail locking screw to a vertical position. This releases the locking mechanism.
 - e. Lift straight up to remove.
2. For the replacement adapter, slide the safety end cap up to remove. This exposes the backplane and power connections.
3. Position the replacement adapter vertically above the DIN rail. (Make certain the DIN rail lock is in the horizontal position.) Slide the adapter down, allowing the interlocking side pieces to engage the adjacent module.
4. Press firmly to seat the adapter on the DIN rail. The adapter locking mechanism will snap into place.
5. Replace the adjacent module in its base.
6. Reconnect the Ethernet cable to the adapter.

7. Set the network address thumbwheel switches to the value used on the replaced module (see **Set the Network Address** on page 3--6 in the next chapter).
8. Insert the end of the terminal block (RTB) opposite the handle into the base unit. This end has a curved section that engages with the wiring base.
9. Rotate the terminal block into the wiring base until it locks itself into place.

Wiring

Refer to the illustration to wire the Ethernet adapter



ATTENTION



Do not connect 120/240V ac power to this supply.

This dc supply will be connected to the internal power bus.

NC = No Connection
Chas GND = Chassis Ground

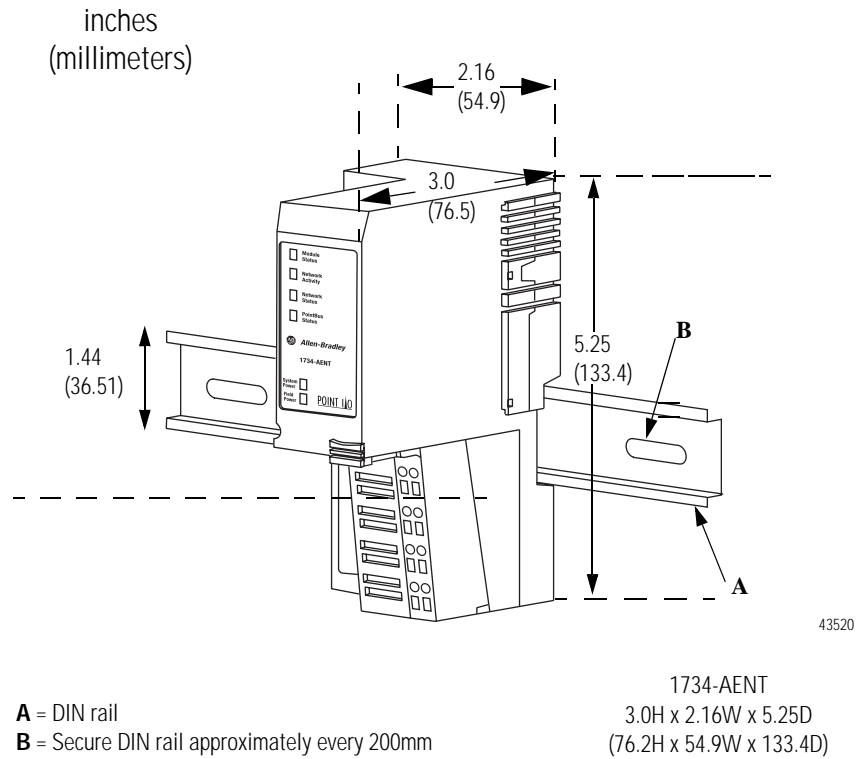
12/24V dc

0	NC	1	NC
2	Chas Gnd	3	Chas Gnd
4	C	5	C
6	V	7	V



C = Common
V = Supply

Mounting Dimensions



What's Next?

The following chapter describes how to configure the adapter to communicate on your EtherNet/IP network by providing an IP address, Gateway address, and Subnet mask.

Notes:

Configure the 1734-AENT Adapter for Your EtherNet/IP Network

What This Chapter Contains

Before you can use your 1734-AENT adapter in an EtherNet/IP network you must configure it with an IP address, Subnet mask, and optional Gateway address. This chapter describes these configuration requirements and the procedures for providing them. There are several way you can do this:

- Using the Rockwell BootP utility, version 2.3 or greater, that ships with RSLogix 5000 or RSLinx software. You can also use this utility to reconfigure a device whose IP address must be changed.
- Using a third party DHCP server.
- Using the Network Address thumbwheel switches.
- Having your network administrator configure the adapter via the network server.

The following table lists where to find specific information within this chapter.

For information about	See page
Configuration Requirements	3-2
IP Address	3-2
Gateway Address	3-3
Subnet Mask	3-4
Set the Network Address	3-6
Use the Rockwell BootP/DHCP Utility	3-7
Save the Relation List	3-9
Use DHCP Software to Configure Your Adapter	3-10

ATTENTION

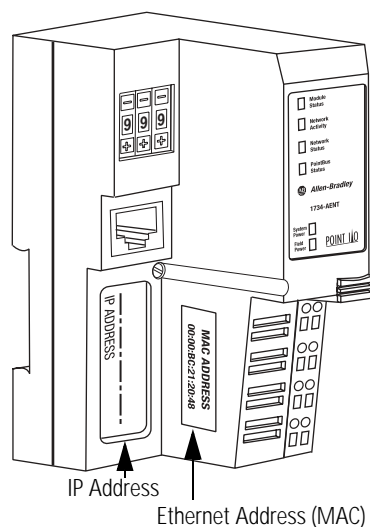


You must use Series C POINT I/O modules with the 1734-AENT adapter. Series A or B POINT I/O modules will not work with this adapter.

Configuration Requirements

Before you can use your 1734-AENT adapter, you must configure its IP address, its subnet mask, and optionally, gateway address. You can use the Rockwell BootP utility, version 2.3 or greater, to perform the configuration. You can also use a DHCP server or the network address switches to configure these parameters.

If the 1734-AENT needs to be reset to factory defaults, see the Important note on page A--9.



IMPORTANT

If using the BootP/DHCP utility, you will need to know the Ethernet hardware address of your adapter. Rockwell assigns each 1734-AENT adapter a unique 48-bit hardware address at the factory. The address is printed on a label on the side of your 1734-AENT adapter as shown in the figure at left. It consists of six hexadecimal digits separated by colons. This address is fixed by the hardware and cannot be changed.

If you change or replace the 1734-AENT adapter, you must enter the new Ethernet hardware address of the adapter when you configure the new adapter.

IP Address

The IP address identifies each node on the IP network (or system of connected networks). Each TCP/IP node on a network (including the 1734-AENT adapter) must have a unique IP address.

The IP address is 32 bits long and has a net ID part and a Host ID part. Networks are classified A, B, C, (or other). The class of the network determines how an IP address is formatted.

	0	7 8	31
Class A	0	Net ID	Host ID
	0	15 16	31
Class B	1 0	Net ID	Host ID
	0	23 24	31
Class C	1 1 0	Net ID	Host ID

You can distinguish the class of the IP address from the first integer in its dotted-decimal IP address as follows:

Range of first integer	Class	Range of first integer	Class
0 -127	A	192 - 223	C
128 -191	B	224 - 255	other

Each node on the same physical network must have an IP address of the same class and must have the same net ID. Each node on the same network must have a different Host ID thus giving it a unique IP address.

IP addresses are written as four decimal integers (0-255) separated by periods where each integer gives the value of one byte of the IP address.

EXAMPLE

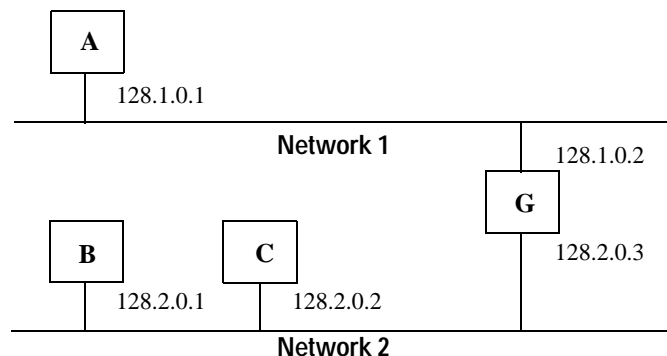
For example, the 32-bit IP address:

10000000 00000001 00000000 00000001 is written as 128.1.0.1.

Gateway Address

This section applies to multi-network systems. If you have a single network system, please skip to the next section.

The Gateway Address is the default address of a network. It provides a single domain name and point of entry to the site. Gateways connect individual physical networks into a system of networks. When a node needs to communicate with a node on another network, a gateway transfers the data between the two networks. The following figure shows gateway G connecting Network 1 with Network 2.



When host B with IP address 128.2.0.1 communicates with host C, it knows from C's IP address that C is on the same network. In an Ethernet environment, B can then resolve C's IP address into a hardware address (MAC address) and communicate with C directly.

When host B communicates with host A, it knows from A's IP address that A is on another network (the net IDs are different). In order to send data to A, B must have the IP address of the gateway connecting the two networks. In this example, the gateway's IP address on Network 2 is 128.2.0.3.

The gateway has two IP addresses (128.1.0.2 and 128.2.0.3). The first must be used by hosts on Network 1 and the second must be used by hosts on Network 2. To be usable, a host's gateway must be addressed using a net ID matching its own.


Subnet Mask

The Subnet Mask is used for splitting IP networks into a series of subgroups, or subnets. The mask is a binary pattern that is matched up with the IP address to turn part of the Host ID address field into a field for subnets.

EXAMPLE

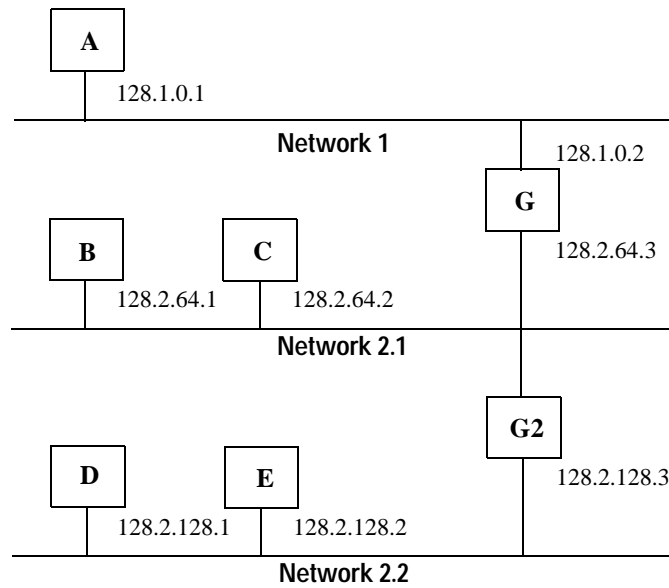
Take Network 2 (a Class B network) in the previous example and add another physical network. Selecting the following subnet mask would add two additional net ID bits, allowing for four physical networks:

11111111 11111111 11000000 00000000 = 255.255.192.0

 These two bits of the Host ID used to extend the net ID

Two bits of the Class B host ID have been used to extend the net ID. Each unique combination of bits in the part of the Host ID where subnet mask bits are 1 specifies a different physical network.

The new configuration is:

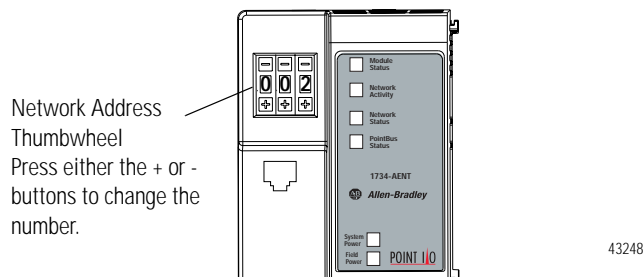


A second network with Hosts D and E has been added. Gateway G2 connects Network 2.1 with Network 2.2. Hosts D and E will use Gateway G2 to communicate with hosts not on Network 2.2. Hosts B and C will use Gateway G to communicate with hosts not on Network 2.1. When B is communicating with D, G (the configured Gateway for B) will route the data from B to D through G2.

Set the Network Address

You can set the network Internet Protocol (IP) address 3 different ways:

1. Using the thumbwheel switches located on the module
2. Using a Dynamic Host Configuration Protocol (DHCP) server, such as Rockwell Automation BootP/DHCP
3. Retrieving the IP address from nonvolatile memory.



The adapter reads the thumbwheel switches only at powerup to determine if the switches are set to a valid number. Press either the + or - buttons to change the number. Valid settings range from 001 to 254. When the switches are set to a valid number, the adapter's IP address will be 192.168.1.xxx (where xxx represents the number set on the switches). The adapter's subnet mask will be 255.255.255.0 and the gateway address is set to 0.0.0.0. The adapter will not have a host name assigned, or use any Domain Name System when using the thumbwheel settings.

If the switches are set to an invalid number (i.e. 000 or a value greater than 254), the adapter checks to see if DHCP is enabled. If DHCP is enabled, the adapter requests an address from a DHCP server. The DHCP server will also assign other Transport Control Protocol (TCP) parameters.

If DHCP is not enabled, the adapter will use the IP address (along with other TCP configurable parameters) stored in nonvolatile memory. The factory default switch setting is 999, and DHCP is enabled.

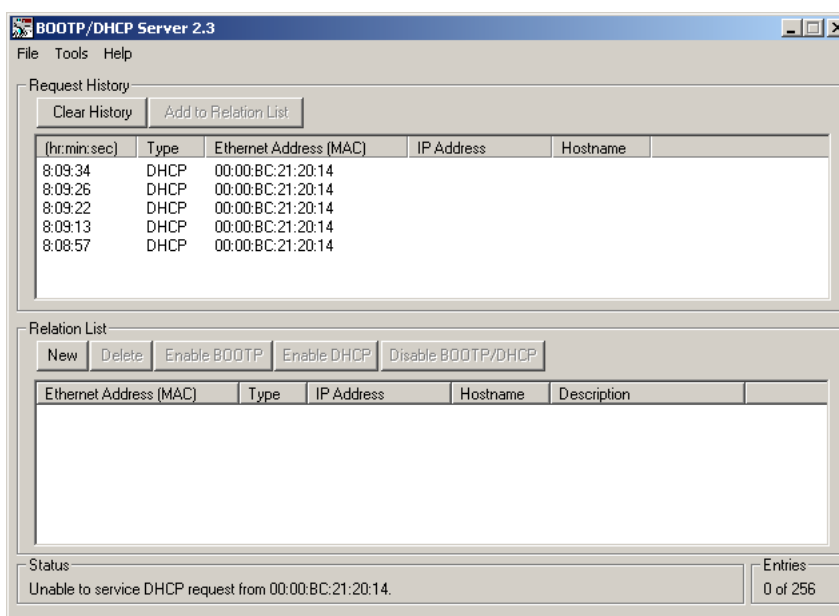
Use the Rockwell BootP/DHCP Utility

The Rockwell BootP/DHCP utility is a stand alone program that incorporates the functionality of standard BootP software with a user friendly graphical interface. It is located in the **Utils** directory on the **RSLogix 5000** installation CD. The 1734-AENT adapter must have DHCP enabled (factory default and the network address switches set to an illegal value) to use the utility.

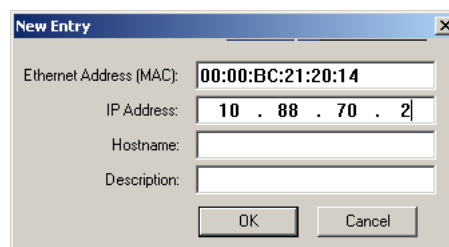
To configure your adapter using the BootP utility, perform the following steps:

1. Run the BootP software.

In the **BOOTP Request History** panel you will see the hardware addresses of devices issuing BootP requests.

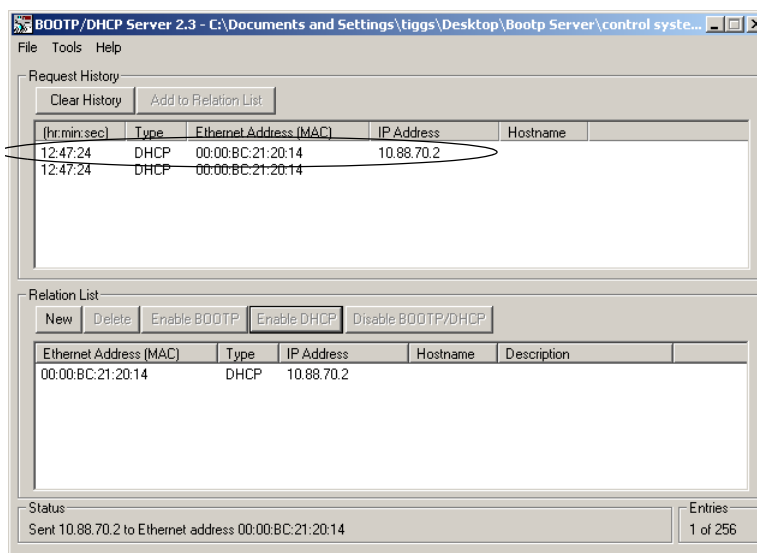


2. Double-click on the hardware address of the device you want to configure. You will see the **New Entry** pop-up window with the device's Ethernet Address (MAC).



3. Enter the IP Address you want to assign to the device and click on **OK**.

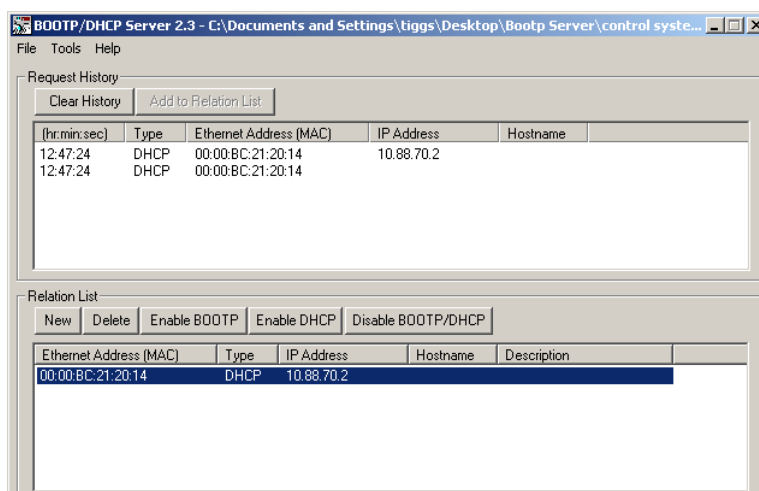
The device will be added to the **Relation List**, displaying the Ethernet Address (MAC) and corresponding IP Address, Hostname and Description (if applicable).



When the address displays in the **IP Address** column in the Request History section, it signifies that the IP address assignment has been made.

- To assign this configuration to the device, highlight the device in the **Relation List** panel and click on the **Disable BOOTP/DHCP** button. When power is cycled to the device, it will use the configuration you assigned and not issue a DHCP request.

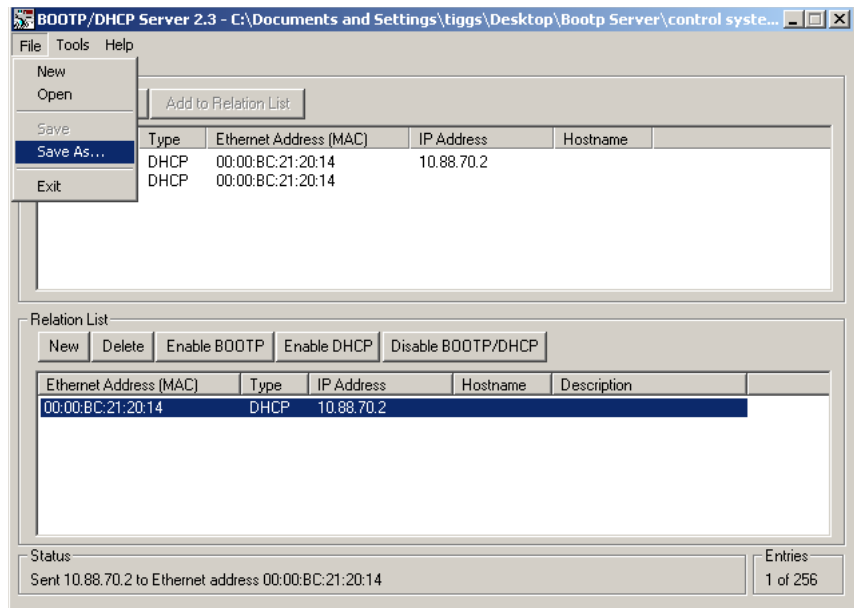
Note: To enable DHCP for a device that has had DHCP disabled, highlight the device in the Relation List and click on the **Enable DHCP** button. You must have an entry for the device in the Relation List panel to re-enable DHCP.



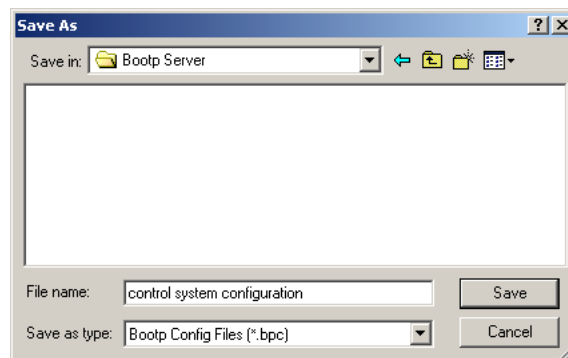
Save the Relation List

You can save the **Relation List** to use later. To save the Relation List perform the following steps:

1. Select **Save As...** from the **File** menu.



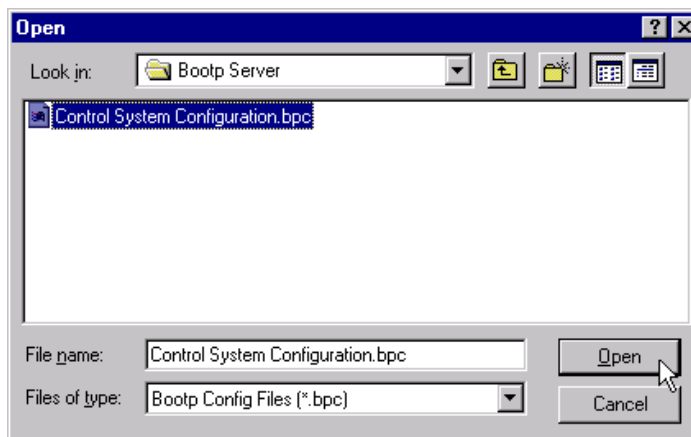
You will see the following window.



2. Select the folder you want to **Save in**:
3. Enter a **File name** for the Relation List (e.g., “control system configuration”) and click on **Save**.

You can leave the **Save as type** at the default setting: “Bootp Config Files (*.bpc)”.

You can then open the file containing the Relation List at a later session.



Use DHCP Software to Configure Your Adapter

DHCP (Dynamic Host Configuration Protocol) software automatically assigns IP addresses to client stations logging onto a TCP/IP network. DHCP is based on BootP and maintains some backward compatibility. The main difference is that BootP was designed for manual configuration, while DHCP allows for dynamic allocation of network addresses and configurations to newly attached devices.

Be cautious about using DHCP software to configure your adapter. A DHCP server typically assigns a finite lease time to the offered IP address. When 50 percent of the leased time has expired, the 1734-AENT adapter will attempt to renew its IP address with the DHCP server. The possibility exists that the adapter will be assigned a different IP address, which would cause the adapter to cease communicating with the ControlLogix controller. Please refer to the sections **Configure the 1734-AENT with Fixed IP Address** on page 4--18 to configure the adapter with a fixed IP address.

ATTENTION



To avoid unintended control, the 1734-AENT adapter must be assigned a fixed IP address. The IP address of this adapter should not be dynamically provided. If a DHCP server is used, it must be configured to assign a fixed IP address for your adapter.

Failure to observe this precaution may result in unintended machine motion or loss of process control.

What's Next?

The following chapter describes an example application in which you configure discrete I/O using a rack optimized connection.

Configure the 1734-AENT for Direct Connection in RSLogix 5000

About the Example Application

In this example, a ControlLogix processor communicates with POINT I/O via the 1734-AENT adapter using a direct connection. The adapter will make a direct connection to each of the modules referenced by the data. Note that the modules presented in this chapter are configured using RSLogix 5000, version 11.

What you will do	See page
Set Up the Hardware	4-2
Create the Example Application	4-3
Configure the I/O	4-4
Add the Local EtherNet/IP Bridge to the I/O Configuration	4-4
Add the POINT I/O Adapter to the I/O Configuration	4-6
Add the POINT I/O Modules to the I/O Configuration	4-8
Add the Relay Output Module	4-8
Add the Digital Output Module	4-11
Edit the Controller Tags	4-13
Create the Ladder Program	4-14
Download the Program to the Controller	4-15
Verify the Module Chassis Size	4-16
Configure the 1734-AENT with Fixed IP Address	4-18
Configure the 1734-AENT with Fixed IP Address	4-18
An Overloaded 1734-AENT	4-19

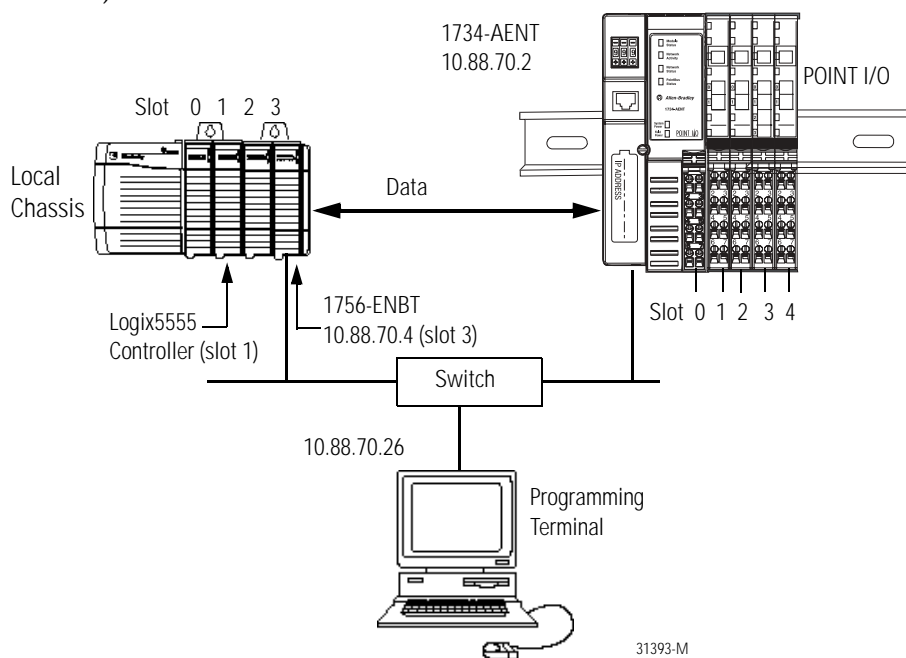
ATTENTION



You must use Series C POINT I/O modules with the 1734-AENT adapter. Series A or B POINT I/O modules will not work with this adapter.

Set Up the Hardware

In this example, a ControlLogix chassis contains the Logix 5555 processor in slot 1 and a 1756-ENBT bridge module in slot 3. The 1734-AENT adapter is mounted on a DIN rail in slot 0, with a 1734-OW2/C relay output module in slot 1, a 1734-OV4E/C sink output module in slot 2, and a power supply (not shown).



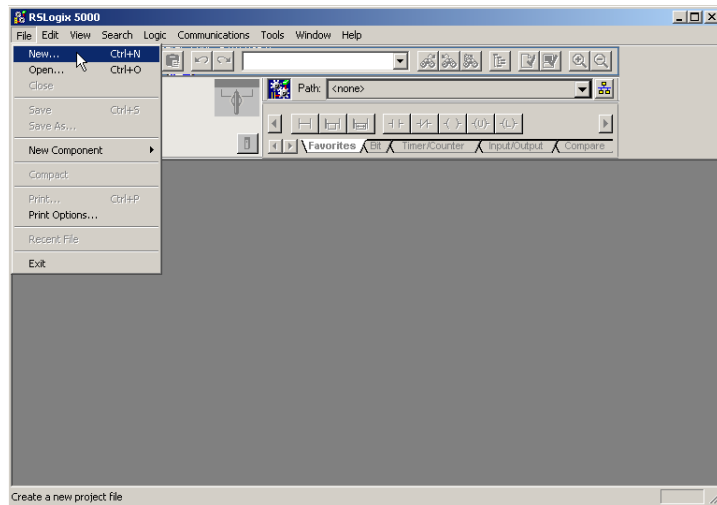
To work along with this example set up your system as shown above.

- Note that in the example application, the Logix5555 controller and 1756-ENBT module (firmware version 2.3 or higher) are assumed to be in the slots shown above.
- Verify the IP addresses for your programming terminal, 1756-ENBT module, and 1734-AENT adapter.
- Verify the position (slot) of the I/O modules on the DIN rail.
- Verify that all wiring and cabling is properly connected.
- Make sure your communication driver (e.g., AB_ETH-1 or AB-ETHIP-1) is configured in RSLinx as described in Appendix B.

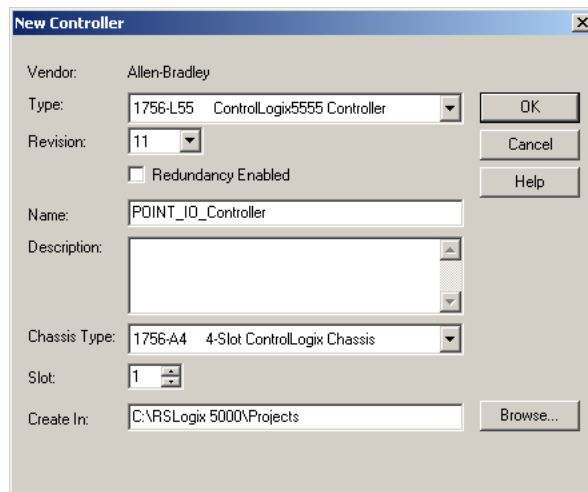
Create the Example Application

Perform the following steps to create the example application:

1. Start RSLogix 5000 Enterprise Series. The RSLogix 5000 Main Window will open.
2. From the File menu, select New.



The New Controller pop-up window will open.



3. Enter an appropriate Name for the Controller, e.g., "POINT_IO_Controller."
4. Select the correct Version, Chassis Type and Slot number of the Logix5555 controller, and the folder where you want to save the RSLogix 5000 file (Create In). The Description is optional.

Note: Version 11 of RSLogix 5000 lets you choose to enable redundancy. This example does not use redundancy. If you are going to use redundancy in your system, check the Redundancy Enabled box so that a check mark appears.

5. Click on OK.

Configure the I/O

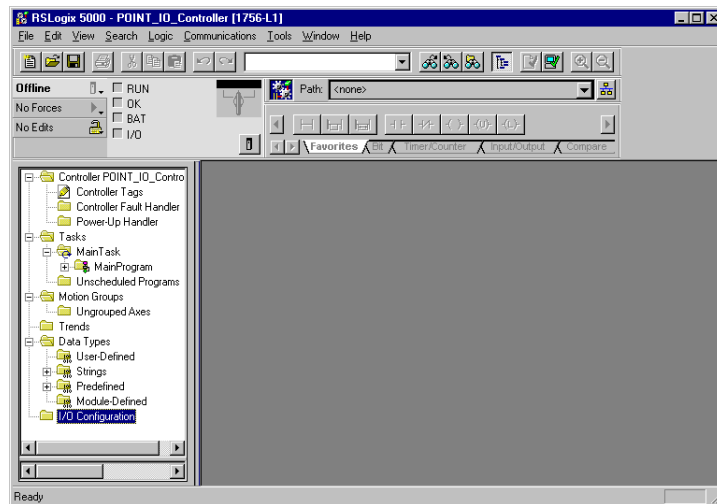
You now add the POINT I/O modules to the controller's I/O configuration. To do this you first add the local 1756-ENBT module to the I/O configuration. Next you add the 1734-AENT adapter as a “child” of the 1756-ENBT module. Then you add the I/O modules as “children” of the 1734-AENT adapter.

IMPORTANT

Click on the **Help** buttons on the configuration screens shown in this section if you need assistance in selecting and setting the parameters.

Add the Local EtherNet/IP Bridge to the I/O Configuration

1. Select the I/O Configuration folder in the project window and click the right mouse button.



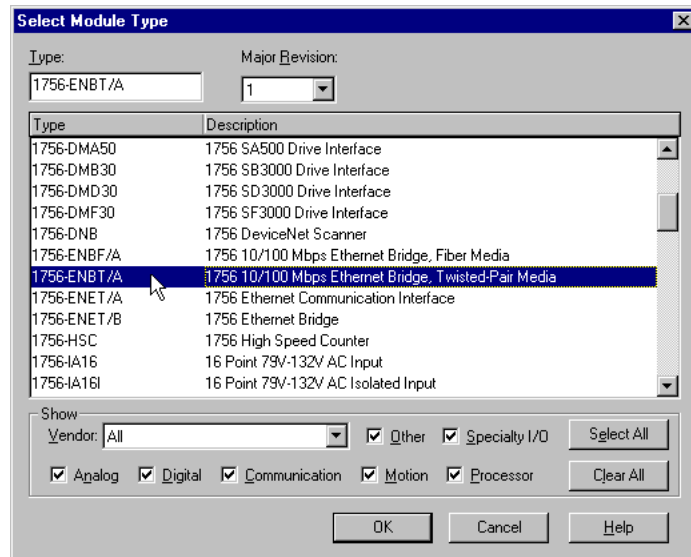
A pop-up window will open.

2. Click on New Module.



The Select Module Type window will open.

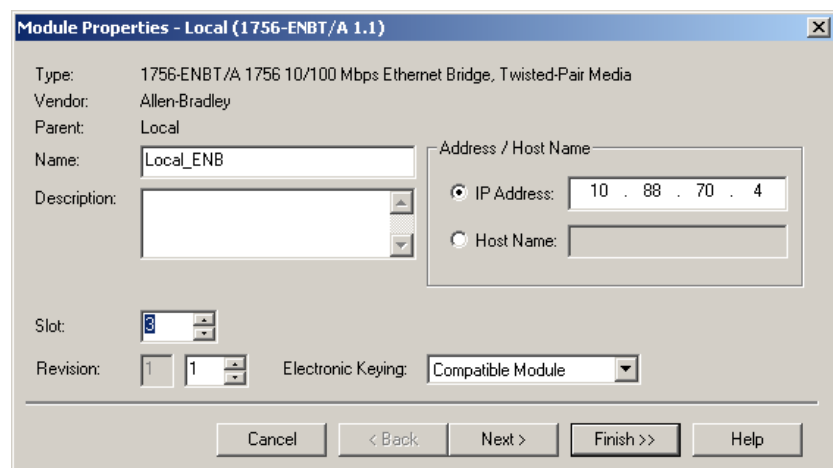
3. Select the 1756-ENBT EtherNet/IP Bridge and click on OK.



The Module Properties window will open.

4. We used the following values:

Name	Local_ENB
IP Address	10.88.70.4
Slot	3
Electronic Keying	Compatible Module
Revision	1.1

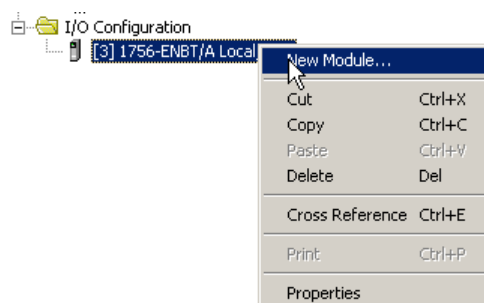


5. Click on Finish to accept the configuration.

Add the POINT I/O Adapter to the I/O Configuration

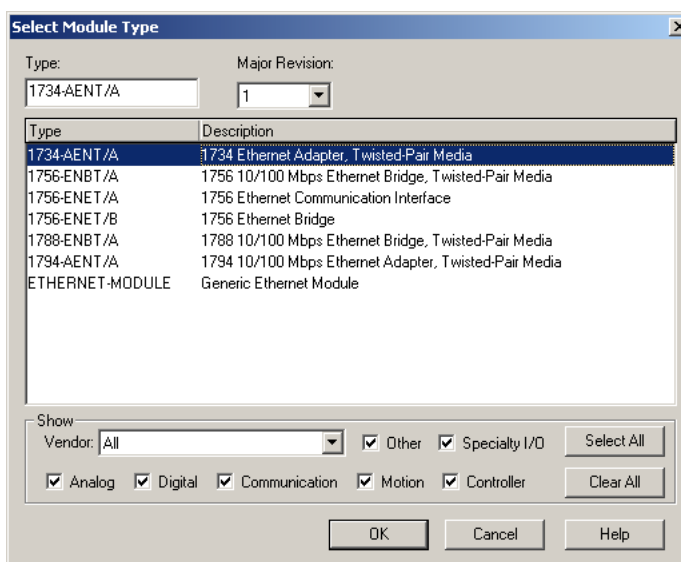
Next, you must add the 1734-AENT adapter as a “child” of the local 1756-ENBT module.

1. In the Project window, right click on the local 1756-ENBT module under the I/O Configuration folder and select **New Module** from the pop-up window.



The Select Module Type window will open.

2. Select the 1734-AENT/A Ethernet adapter from the list and click on OK.

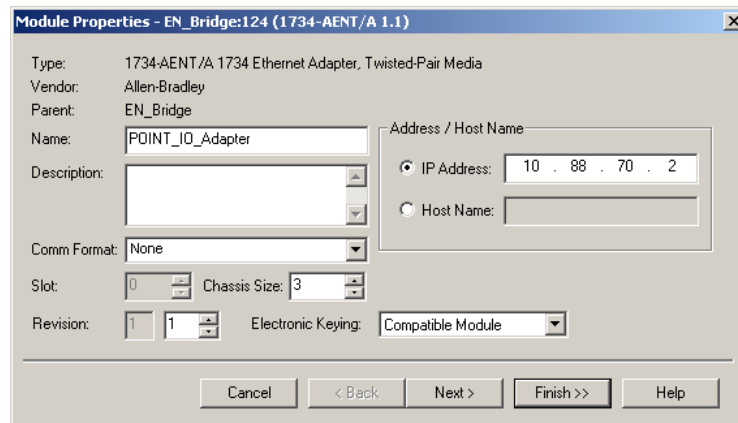


The **Module Properties** window will open.

3. We used the following values:

Name	POINT_IO_Adapter
IP Address	10.88.70.2
Comm Format	None
Chassis Size	3
Electronic Keying	Compatible Module
Revision	1.1

Note that the **Slot** field is disabled because the slot is automatically 0 for the 1734-AENT.



IMPORTANT

The chassis size equals 1 for the adapter + the number of POINT I/O modules installed (physically present on the POINT I/O backplane).

Comm Format choices:

- none = the adapter will make a direct connection to each of the modules referenced by the data.
- rack optimization = digital I/O data is collected into a rack image. (Note: This does not include analog or specialty I/O modules.)
- listen only - rack optimization = read or verify data only, but does not control the modules (when you have multiple processors - one processor is used to control and the other processors are used to monitor).

Because we are making a direct connection, **None** is chosen as the **Comm Format**.

4. Click **Next**.

Because None was entered as the **Comm Format** on the **Module Properties** window, the RPI (requested packet interval) is disabled.

5. Click on the **Finish** button to accept the configuration.

The 1734-AENT adapter will appear indented under the local 1734-ENBT in the I/O Configuration folder.



Add the POINT I/O Modules to the I/O Configuration

You must now add the POINT I/O modules to the I/O Configuration List under the 1734-AENT adapter.

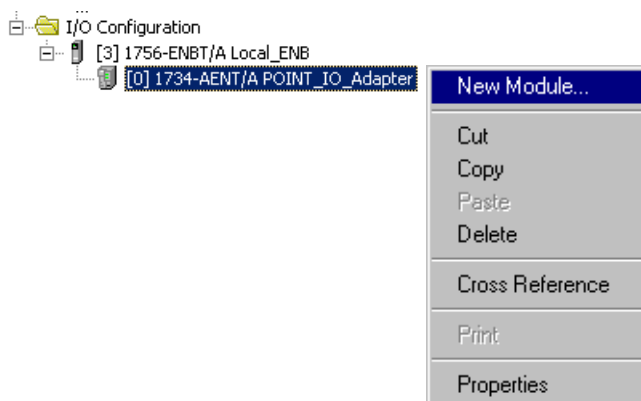
In this example, you will add a 1734-OW2 relay output module and a 1734-OV4E sink output module with standard configurations. Use these steps as a guide when you are configuring different I/O modules for your system.

TIP

This example application uses the I/O modules' default configurations. For more information, see the POINT I/O Selection Guide, publication no. 1734-SG001.

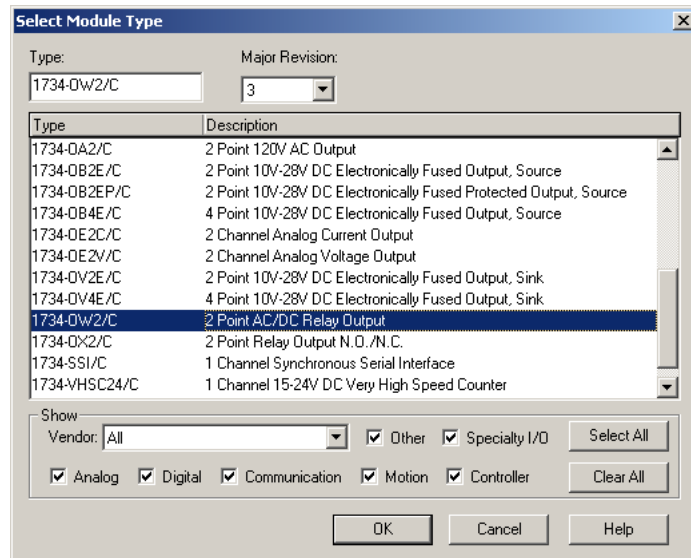
Add the Relay Output Module

1. Right click on the remote **1734-AENT** adapter under the I/O Configuration folder and select **New Module**.



The **Select Module Type** window will open.

2. Select the **1734-OW2/C** relay output module from the list and click on **OK**.



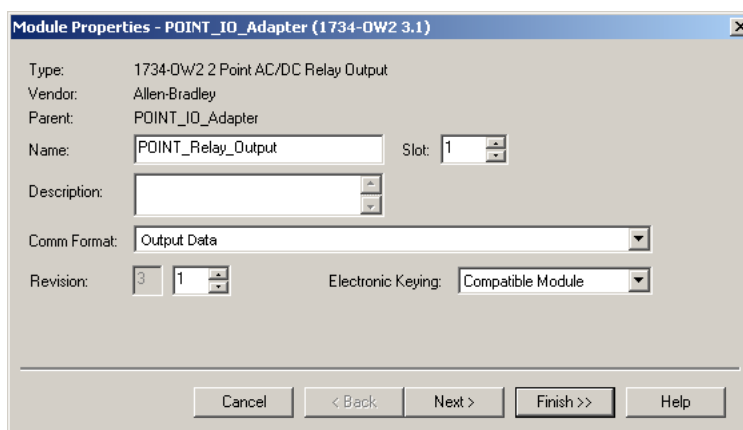
TIP

At the bottom of the **Select Module Type** screen, you can choose **Clear All** and then select a type of module (analog, digital, specialty) to narrow your search.

The **Module Properties** window will open.

3. We used the following values:

Name	POINT_Relay_Output
Slot	1
Comm Format	Output Data
Electronic Keying	Compatible Module
Revision	3.1



The **Comm Format** is **Output Data**, indicating a direct connection, because on the adapter's property window, we set the **Comm Format** to **None**.

If you are using a discrete input module, then the **Comm Format** would be **Input Data**.

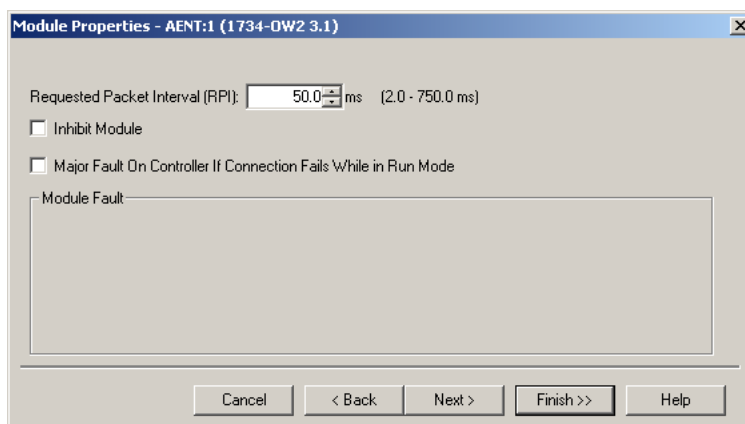
4. Choose Next.

Notice that RPI is selectable on the screen below since it is a direct connection.

5. Enter the RPI (requested packet interval) to set how often the data is exchanged with the 1734-AENT.

IMPORTANT

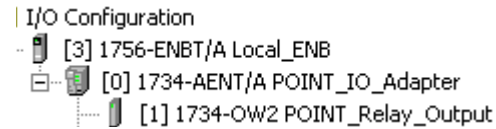
To avoid overloading the 1734-AENT, it is recommended that the RPI be no less than 10 ms for rack connections and 50 ms for direct connections.



6. Enter 50 for the RPI.

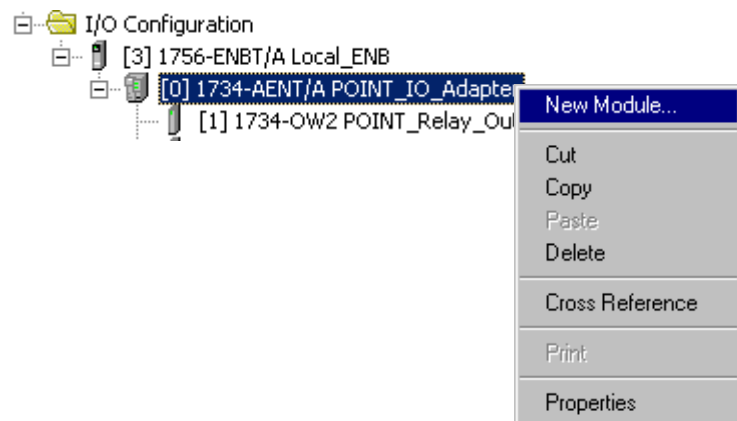
7. Click on the **Finish button to save the configuration.**

The relay output module will appear in the I/O configuration indented under the 1734-AENT adapter.



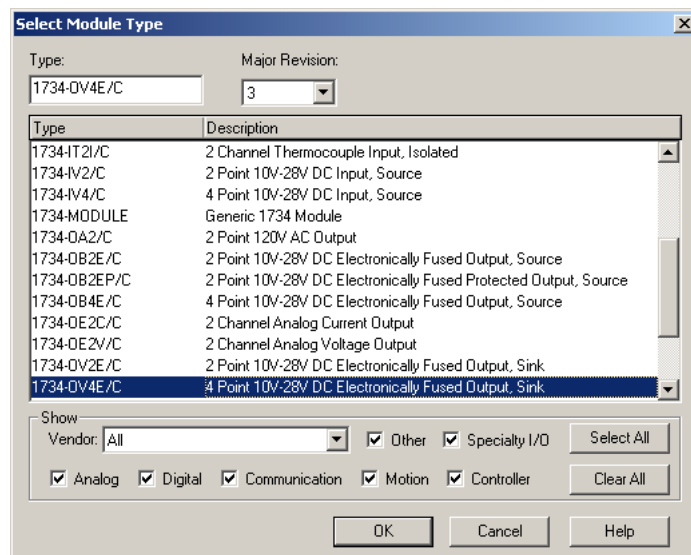
Add the Digital Output Module

8. Right click on the **1734-AENT adapter and again select **New Module**.**



The **Select Module Type** window will open.

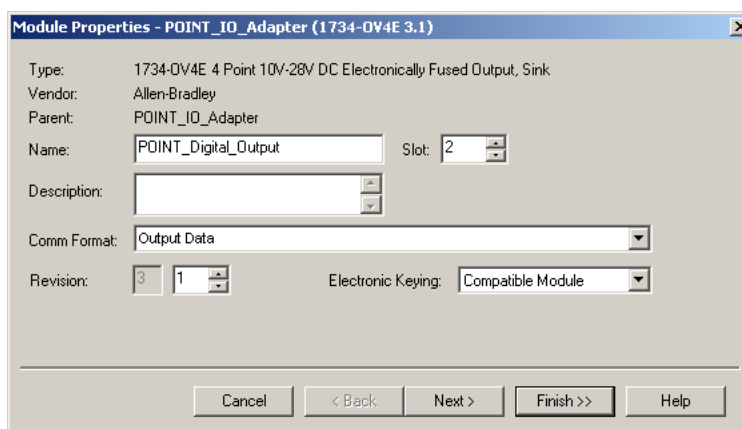
9. Select the **1734-OV4E/C digital output module from the list.**



The **Module Properties** window will open.

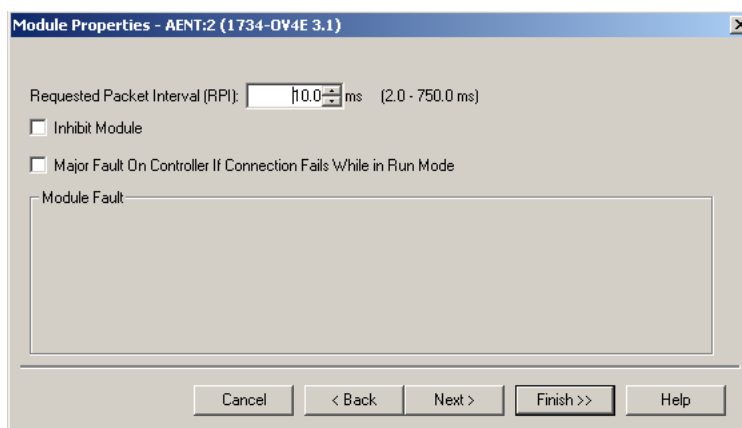
10. We used the following values:

Name	POINT_Digital_Output
Slot	2
Comm Format	Output Data
Electronic Keying	Compatible Module
Revision	3.1

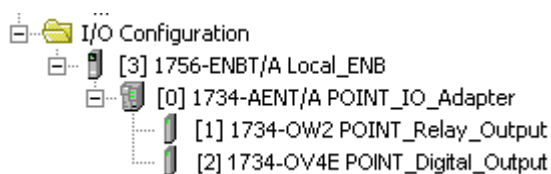


11. Click the **Next** button.

12. Leave 10 ms. as the RPI for the 1734-OV4E module.



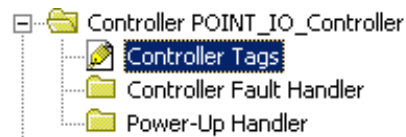
13. Click on the **Finish** button to accept the configuration. The I/O Configuration in the Project window should look similar to the one shown below.



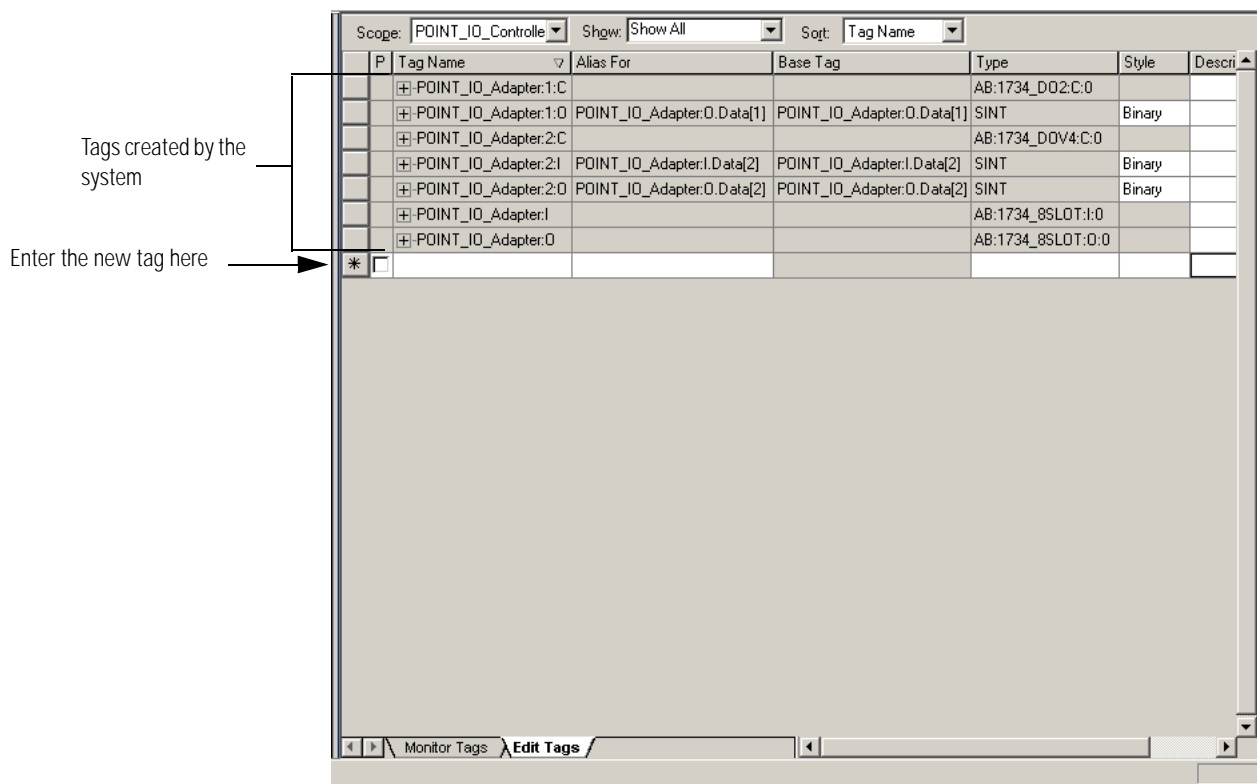
Edit the Controller Tags

When you add modules to the I/O configuration the system creates tags for those modules to use in the application program. For the example application you need to add one more Controller Tag.

1. Double-click on the **Controller Tags** folder in the project window.



The **Controller Tags** window will open. You will see the tags created for the 1734-AENT and digital I/O modules.



2. Click on the **Edit Tags** tab at the bottom of the Controller Tags window and create the following tag:

Tag	Type
Parts_Count	Counter

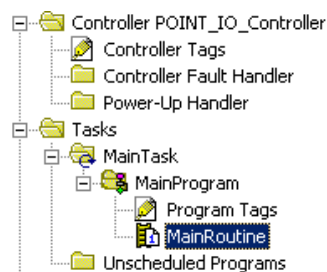
Scope: POINT_IO_Controller Shgw: Show All Sort: Tag Name						
P	Tag Name	Alias For	Base Tag	Type	Style	De
	POINT_IO_Adapter:1:C			AB:1734_DO2:C:0		
	POINT_IO_Adapter:1:O	POINT_IO_Adapter:O.Data[1]	POINT_IO_Adapter:O.Data[1]	SINT	Binary	
	POINT_IO_Adapter:2:C			AB:1734_DOV4:C:0		
	POINT_IO_Adapter:2:I	POINT_IO_Adapter:I.Data[2]	POINT_IO_Adapter:I.Data[2]	SINT	Binary	
	POINT_IO_Adapter:2:O	POINT_IO_Adapter:O.Data[2]	POINT_IO_Adapter:O.Data[2]	SINT	Binary	
	POINT_IO_Adapter:I			AB:1734_8SL0T:I:0		
	POINT_IO_Adapter:O			AB:1734_8SL0T:O:0		
	Parts_count			COUNTER	Decimal	

3. Close the Controller Tags window.

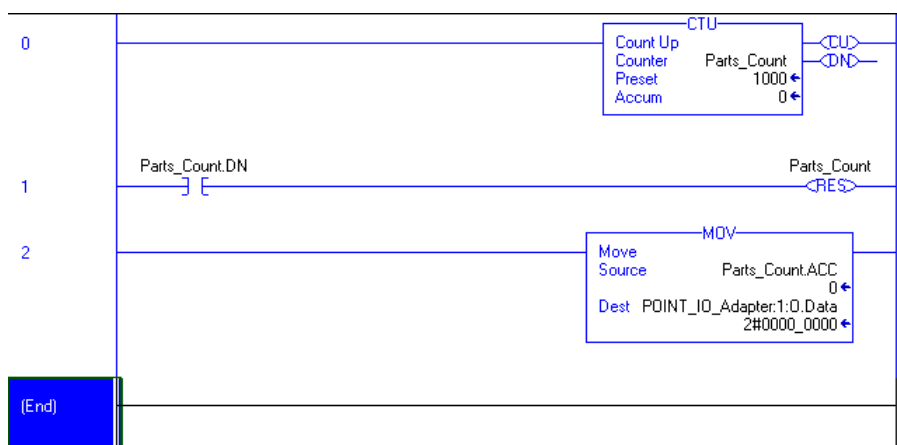
Create the Ladder Program

Next create the example ladder program to test the I/O.

1. Double-click on MainRoutine under the Main Program folder.



2. Enter the following ladder program using the tags previously created.

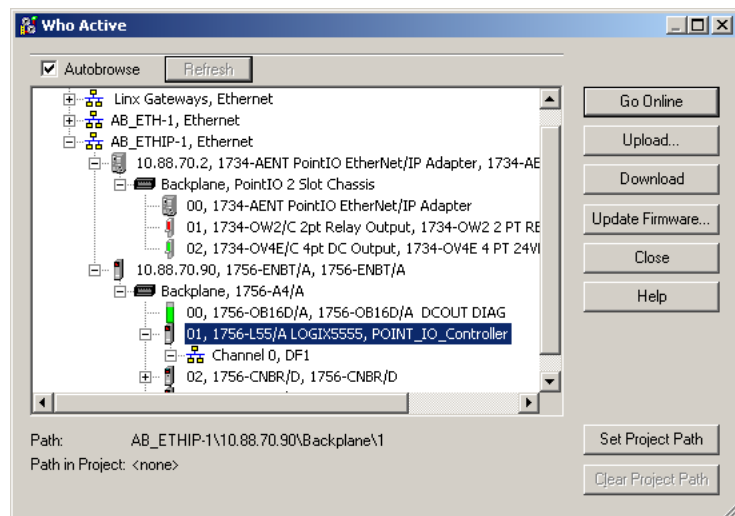


3. Save the program.

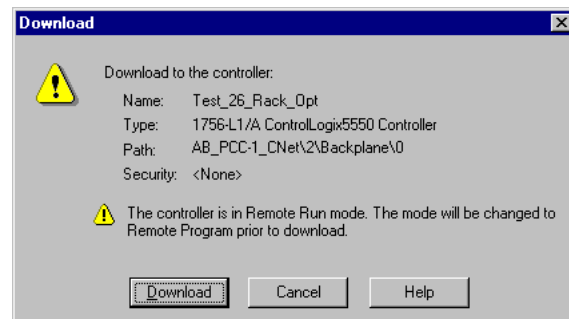
Download the Program to the Controller

Follow this procedure to download the program we just saved to the ControlLogix controller.

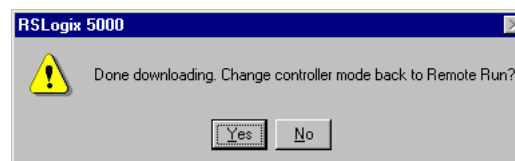
1. From the main menu, choose **Communications>Who-Active**.
2. Navigate to select the slot where the processor is located in the chassis.
3. Choose **Set Project Path**.
4. Choose **Download**.



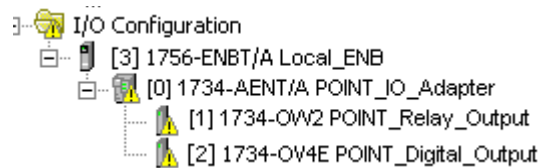
5. Choose **Download**.



You see this window.



Notice that the 1756-ENBT Bridge is now online. If yellow triangles are present, see the following section.

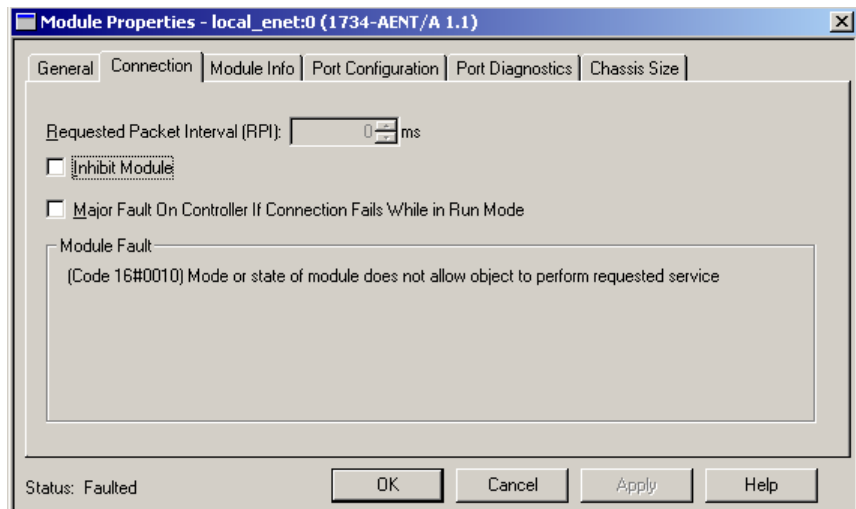


Verify the Module Chassis Size

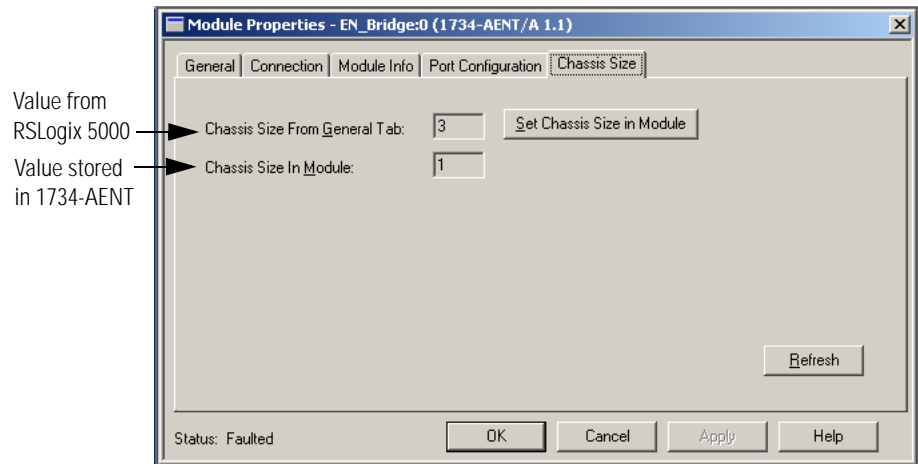
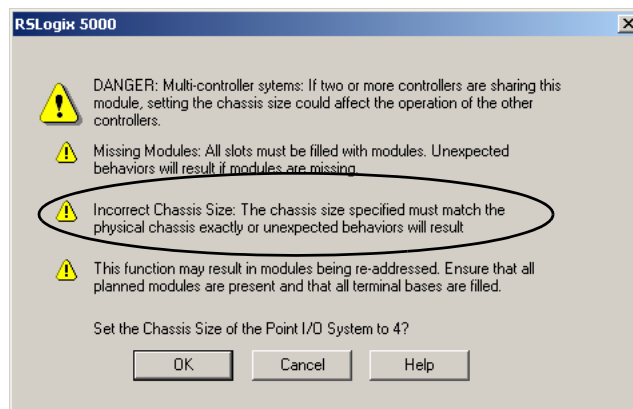
You have now built the I/O tree in RSLogix 5000, and the RSLogix 5000 software used the chassis size from the 1734-AENT **General** tab. Now you need to download this new chassis size value into the 1734-AENT adapter hardware. This procedure will synchronize the chassis size value from the RSLogix 5000 software into the 1734-AENT hardware.

1. Verify that RSLogix 5000 is online.
2. Right click on the 1734-AENT under I/O Configuration in the Project window.
3. Select **Properties**.
4. Click the **Connection** tab.

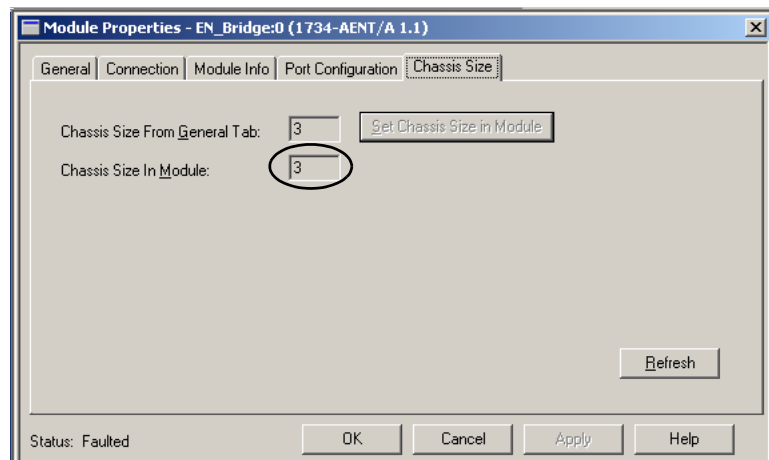
You see the Module Fault error code.



5. Click the **Chassis Size** tab.

6. Click Set Chassis Size in Module.**7. Read and acknowledge the warning screen.****8. Click OK to continue.**

Notice the chassis size in the module has been modified to 3.



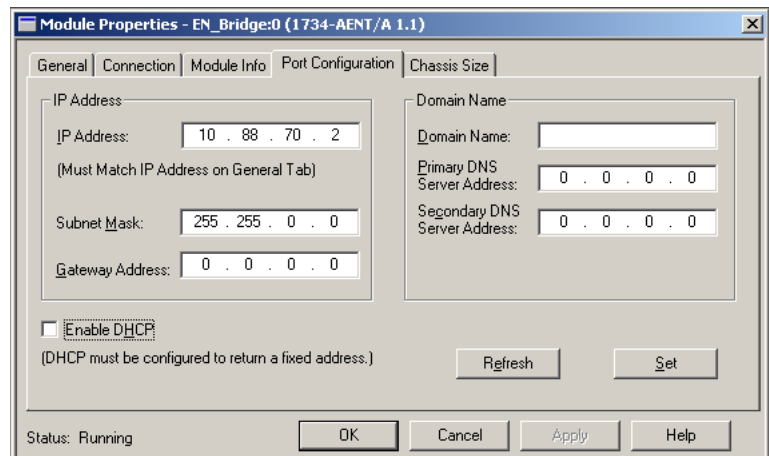
9. Click **OK**.

At this point, your PointBus status LED should be solid green. All the yellow triangles in your I/O configuration should be gone.

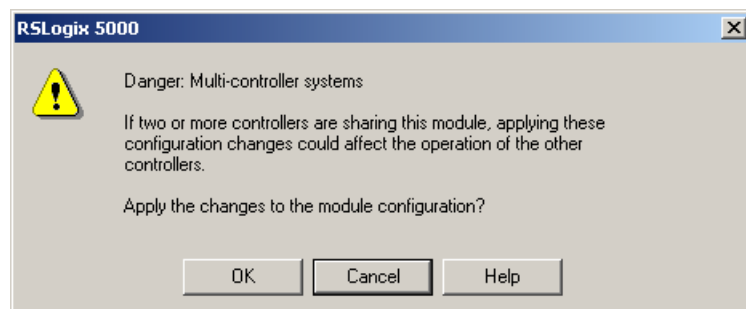
Configure the 1734-AENT with Fixed IP Address

To configure the 1734-AENT with a fixed IP address to prevent the adapter from ceasing to communicate with the ControlLogix controller:

1. Click on the **Port Configuration** tab in the 1734-AENT properties window.
2. Click the **Enable DHCP** box so that there is **not** a check mark in the box.



3. Click the **Set** button.
4. Read and acknowledge the warning.

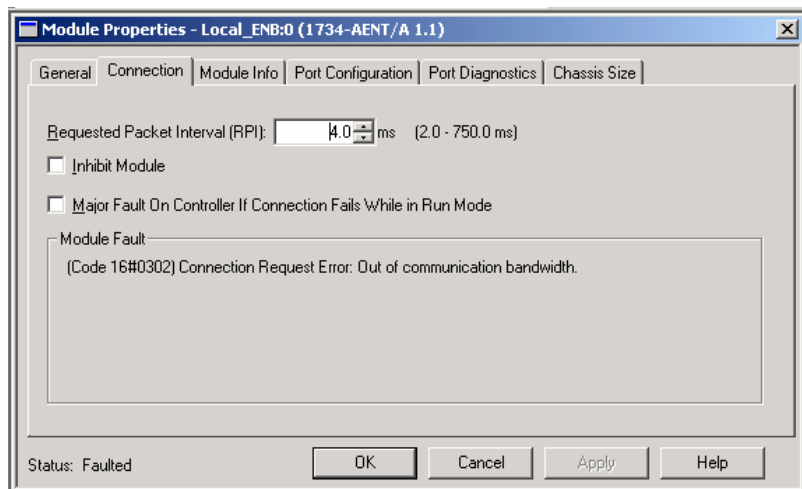


5. Click **OK**.
6. Click the **Refresh** button to verify the changes.

An Overloaded 1734-AENT

Each POINT I/O connection established with the 1734-AENT will consume a portion of the microprocessor's bandwidth. The amount of bandwidth used by a connection depends on a number of variables, including the Requested Packet Interval (RPI), the number of POINT I/O modules involved in the connection, and the rate of change of the I/O. The 1734-AENT continuously monitors this bandwidth and will reject requests for new connections when there is insufficient bandwidth available to support the new connection.

The condition where the 1734-AENT cannot support the connection due to a limit of the microprocessor's bandwidth is shown below.



If this condition is encountered, the only action that can be taken is to alter the existing connections to reduce the amount of microprocessor bandwidth consumed. The most likely fixes for this condition include:

- Increase the RPI
- Decrease the number of connections.

Notes:

Configure the 1734-AENT for Direct Connection and Rack Optimization in RSLogix 5000

What's in This Chapter

This chapter guides you through the steps required to configure your 1734 POINT I/O Ethernet Adapter for both direct connection and rack optimization using RSLogix 5000. You can mix communication formats for different I/O modules communicating through the same adapter. I/O modules set up to use rack optimization will communicate at the rate of the RPI configured for the 1734-AENT adapter. I/O modules configured for direct communication will communicate at their own set RPIs and ignore the 1734-AENT adapter's RPI. Note that the modules presented in this chapter are configured using RSLogix 5000, version 11. The chapter contains the following main sections:

What you will do	See page
Set Up the Hardware	5-2
Create the Example Application	5-3
Configure the I/O	5-4
Add the Local EtherNet/IP Bridge to the I/O Configuration	5-4
Add the POINT I/O Adapter to the I/O Configuration	5-6
Add the POINT I/O Module and Configure For Direct Connection	5-8
Add the POINT I/O Module and Configure For Rack Optimization	5-11
Download the Program to the Controller	5-12
Verify the Module Chassis Size	5-13
Access Module Data via the 1734-AENT Adapter	5--16

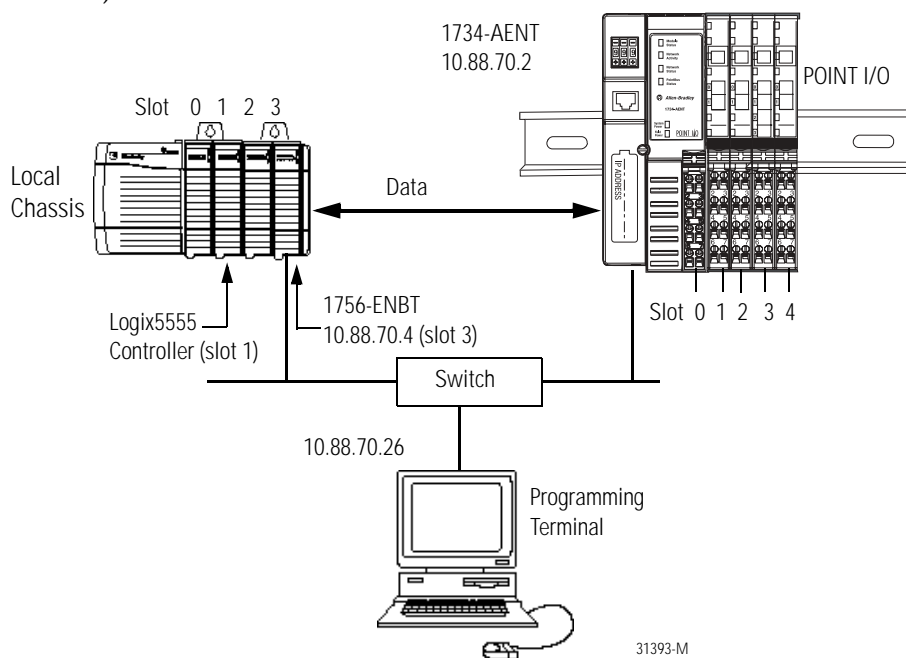
ATTENTION



You must use Series C POINT I/O modules with the 1734-AENT adapter. Series A or B POINT I/O modules will not work with this adapter.

Set Up the Hardware

In this example, a ControlLogix chassis contains the Logix 5555 processor in slot 1 and a 1756-ENBT bridge module in slot 3. The 1734-AENT adapter is mounted on a DIN rail in slot 0, with a 1734-OW2/C relay output module in slot 1, a 1734-OV4E/C sink output module in slot 2, and a power supply (not shown).



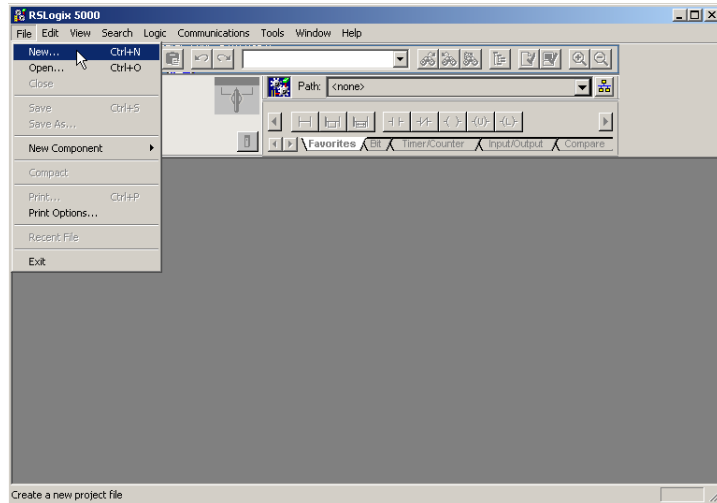
To work along with this example set up your system as shown above.

- Note that in the example application, the Logix5555 controller and 1756-ENBT module (firmware version 2.3 or higher) are assumed to be in the slots shown above.
- Verify the IP addresses for your programming terminal, 1756-ENBT module, and 1734-AENT adapter.
- Verify the position (slot) of the I/O modules on the DIN rail.
- Verify that all wiring and cabling is properly connected.
- Make sure your communication driver (e.g., AB_ETH-1 or AB-ETHIP-1) is configured in RSLinx as described in Appendix B.

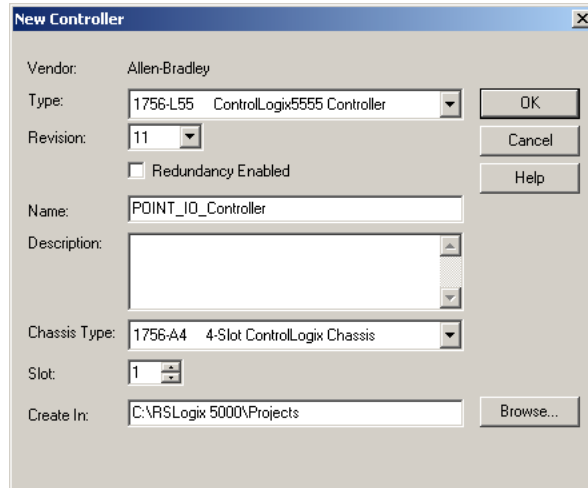
Create the Example Application

Perform the following steps to create the example application:

1. Start RSLogix 5000 Enterprise Series. The RSLogix 5000 Main Window will open.
2. From the File menu, select New.



The New Controller pop-up window will open.



3. Enter an appropriate Name for the Controller, e.g., "POINT_IO_Controller."
4. Select the correct Version, Chassis Type and Slot number of the Logix5555 controller, and the folder where you want to save the RSLogix 5000 file (Create In). The Description is optional.

Note: Version 11 of RSLogix 5000 lets you choose to enable redundancy. This example does not use redundancy. If you are going to use redundancy in your system, check the **Redundancy Enabled** box so that a check mark appears.

Click on OK.

Configure the I/O

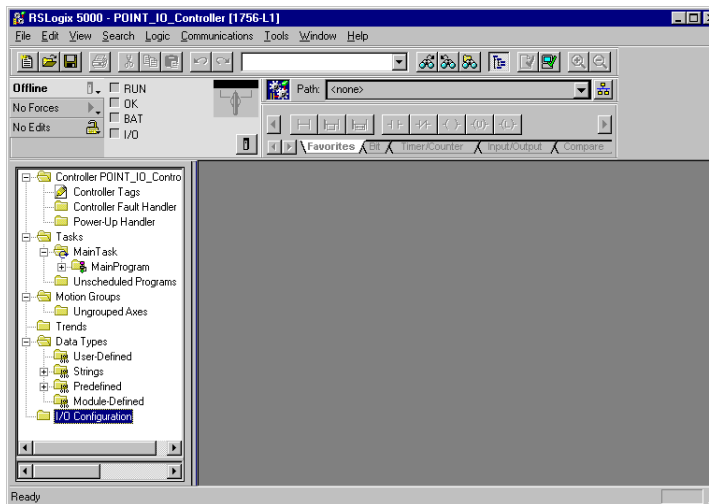
You now add the POINT I/O modules to the controller's I/O configuration. To do this you first add the local 1756-ENBT module to the I/O configuration. Next you add the 1734-AENT adapter as a “child” of the 1756-ENBT module. Then you add the I/O modules as “children” of the 1734-AENT adapter.

IMPORTANT

Click on the **Help** buttons on the configuration screens shown in this section if you need assistance in selecting and setting the parameters.

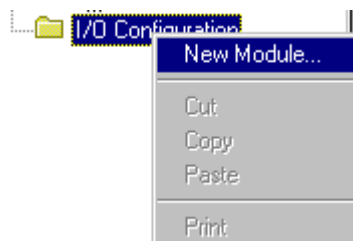
Add the Local EtherNet/IP Bridge to the I/O Configuration

1. Select the I/O Configuration folder in the project window and click the right mouse button.



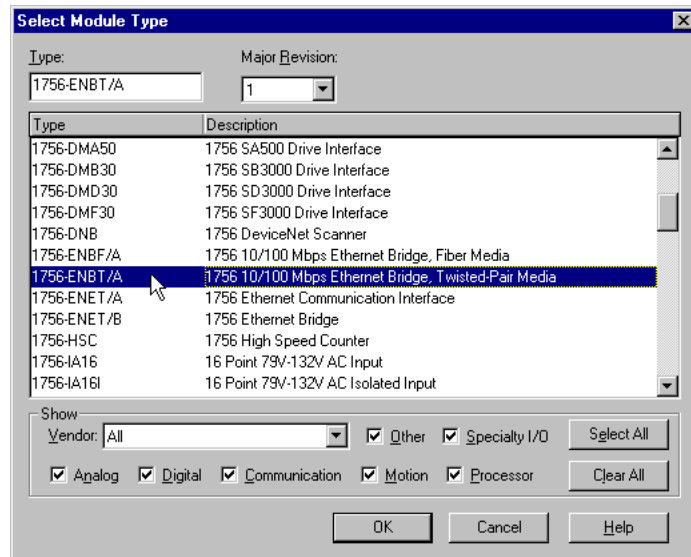
A pop-up window will open.

2. Click on New Module.



The **Select Module Type** window will open.

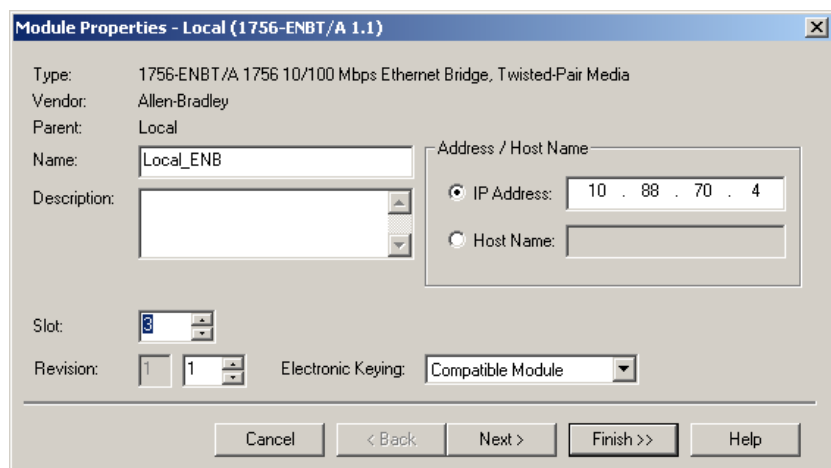
3. Select the **1756-ENBT EtherNet/IP Bridge** and click on **OK**.



The **Module Properties** window will open.

4. We used the following values:

Name	Local_ENB
IP Address	10.88.70.4
Slot	3
Electronic Keying	Compatible Module
Revision	1.1

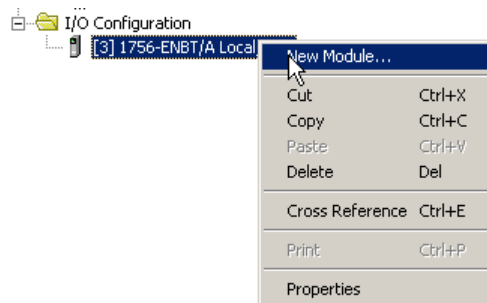


5. Click on **Finish** to accept the configuration.

Add the POINT I/O Adapter to the I/O Configuration

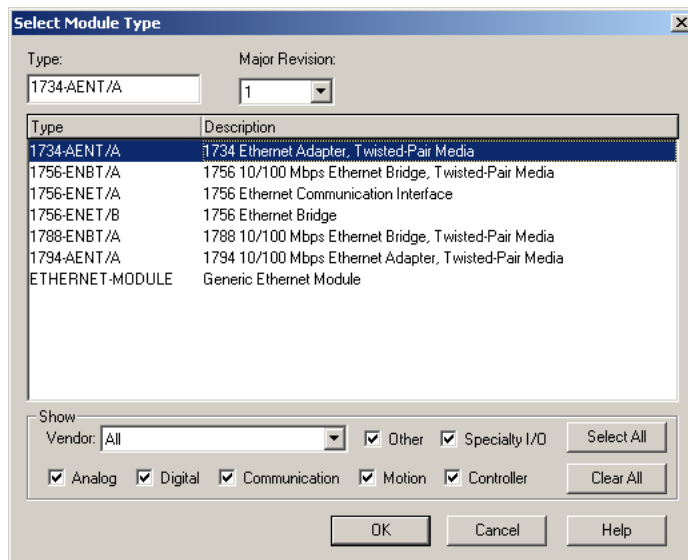
Next, you must add the 1734-AENT adapter as a “child” of the local 1756-ENBT module.

1. In the Project window, right click on the local 1756-ENBT module under the I/O Configuration folder and select **New Module** from the pop-up window.



The Select Module Type window will open.

2. Select the 1734-AENT/A Ethernet adapter from the list and click on OK.

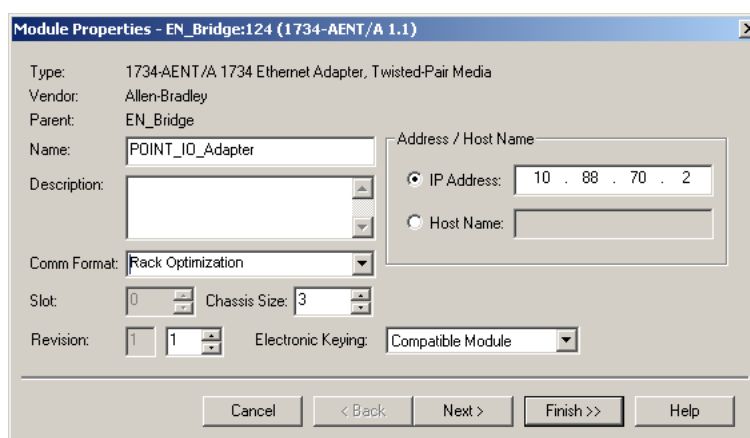


The **Module Properties** window will open.

3. We used the following values:

Name	POINT_IO_Adapter
IP Address	10.88.70.2
Comm Format	Rack Optimization
Chassis Size	3
Electronic Keying	Compatible Module
Revision	1.1

Note that the **Slot** field is disabled because the slot is automatically 0 for the 1734-AENT.



IMPORTANT

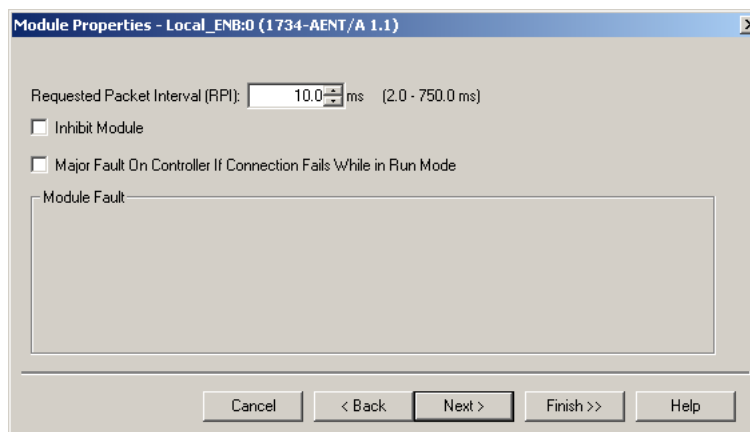
The chassis size equals 1 for the adapter + the number of POINT I/O modules installed (physically present on the POINT I/O backplane).

- Comm Format choices:
 - none = the adapter will make a direct connection to each of the modules referenced by the data
 - rack optimization = digital I/O data is collected into a rack image. (Note: This does not include analog or specialty I/O modules.)
 - listen only - rack optimization = read or verify data only, but does not control the modules (when you have multiple processors - one processor is used to control and the other processors are used to monitor).

Because we are making a mixed connection (both a direct connection and rack optimized connection), **Rack Optimization** is chosen as the Comm Format.

4. Click on Next.

The following window will open:



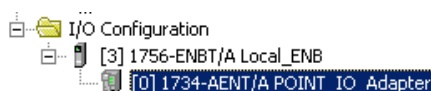
5. Verify that the **Requested Packet Interval (RPI)** is appropriate for your system (10 ms for this example). This will be used for the rack optimized connection to the I/O modules.

IMPORTANT

To avoid overloading the 1734-AENT, it is recommended that the RPI be no less than 10 ms for rack connections and 50 ms for direct connections.

6. Click on the **Finish** button to accept the configuration.

The 1734-AENT adapter will appear indented under the local 1734-ENBT in the I/O Configuration folder.



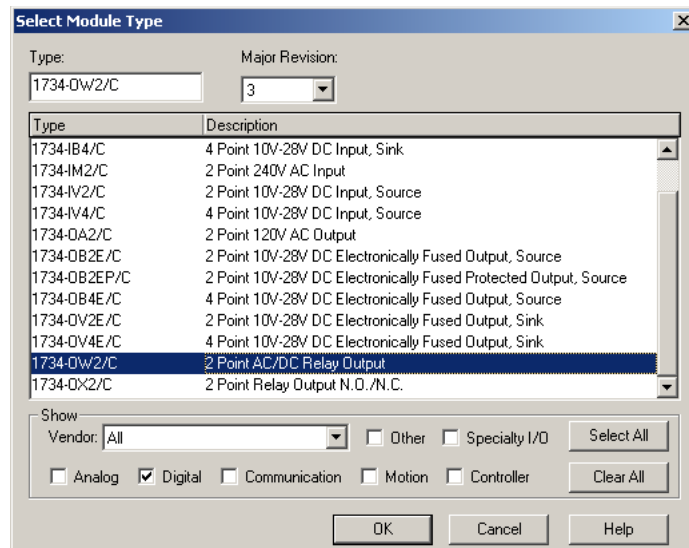
Add the POINT I/O Module and Configure For Direct Connection

1. Highlight the 1734-AENT under I/O configuration, right click and select **New Module**.

IMPORTANT

If the 1734-AENT chassis size is exceeded, (i.e., you try to add more modules than you configured) the **New Module** selection will be dimmed out and disabled. You will not be able to add any more POINT I/O modules until the 1734-AENT chassis size is increased.

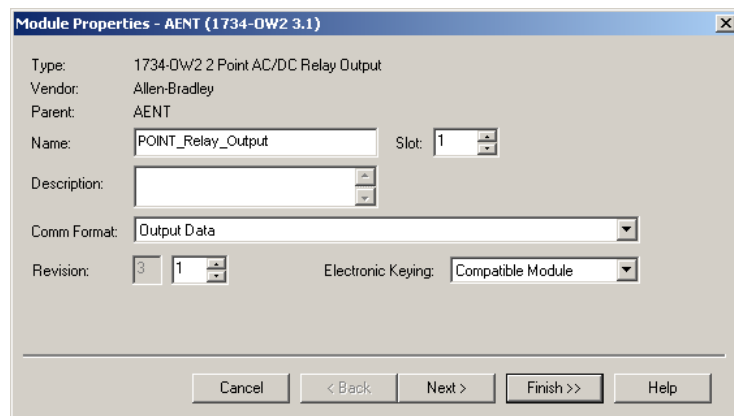
2. Choose the 1734-OW2/C from the list of modules.

**TIP**

At the bottom of the **Select Module Type** screen, you can choose **Clear All** and then select a type of module (analog, digital, specialty) to narrow your search.

3. Click OK.

The **Module Properties** window will open.

4. Enter a Name (optional), Slot Number, and the Comm Format.

The **Comm Format** is **Output Data** because we are configuring a mixed direct connection and rack optimized connection, with the 1734-OW2/C Relay Output module configured for a direct connection.

If you are using a discrete input module, then the **Comm Format** would be **Input Data** for a direct connection.

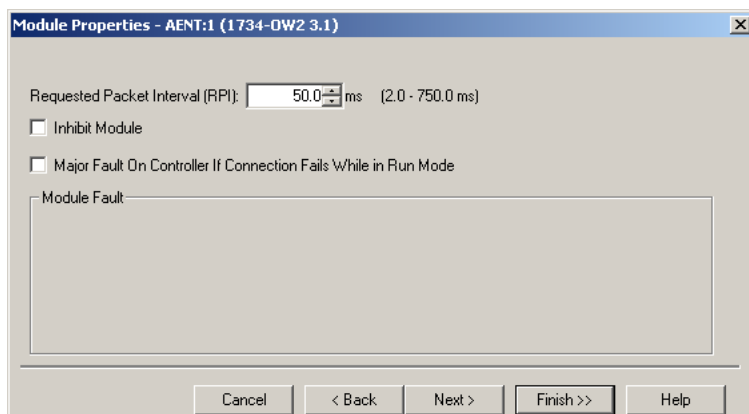
5. Choose Next.

Notice that RPI is selectable on the screen below since it is a direct connection.

6. Enter the RPI (requested packet interval) to set how often the data is exchanged with the 1734-AENT.

IMPORTANT

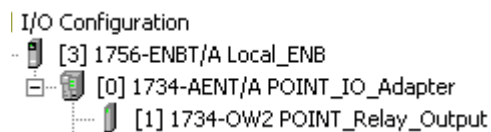
To avoid overloading the 1734-AENT, it is recommended that the RPI be no less than 10 ms for rack connections and 50 ms for direct connections.



7. Enter 50 for the RPI.

8. Choose **Finish**.

Notice that the 1734-OW2 is now under the I/O configuration.

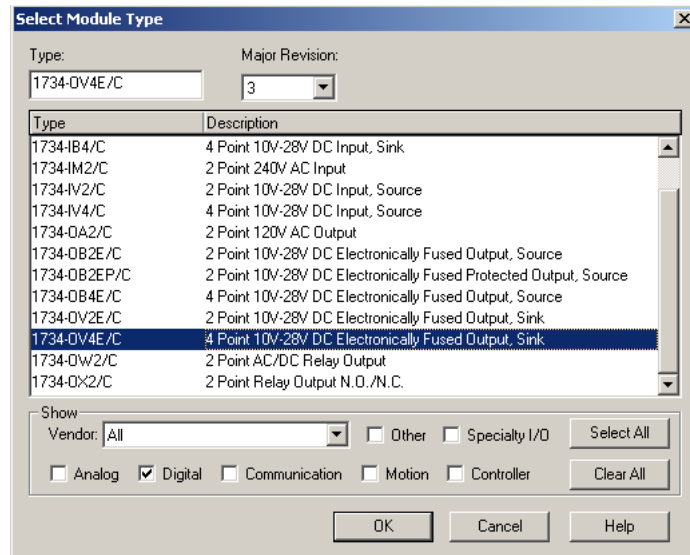


Add the POINT I/O Module and Configure For Rack Optimization

1. Highlight the 1734-AENT under I/O Configuration, right click and select **New Module**.

The **Select Module Type** window will open.

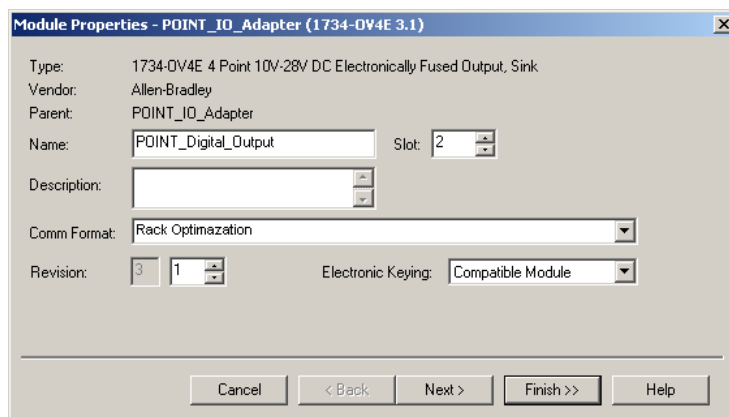
2. Choose the 1734-OV4E/C module.



3. Click **OK**.

The **Module Properties** window will open.

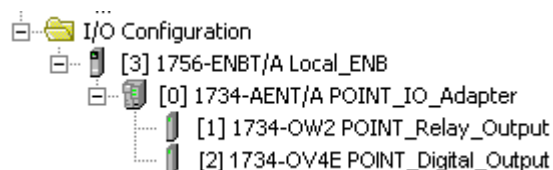
4. Enter a Name, Slot, Comm Format, and Comm Format.



The **Comm Format** is **Rack Optimization** because we are configuring a mixed direct connection and rack optimized connection, with the 1734-OVE4/C digital output module configured for a rack optimized connection.

The output data for the 1734-OW2 is a separate and distinct module on the network. The 1734-OV4E is part of the rack connection.

- Click on the **Finish** button to accept the configuration. The I/O Configuration in the Project window should look similar to the one shown below.

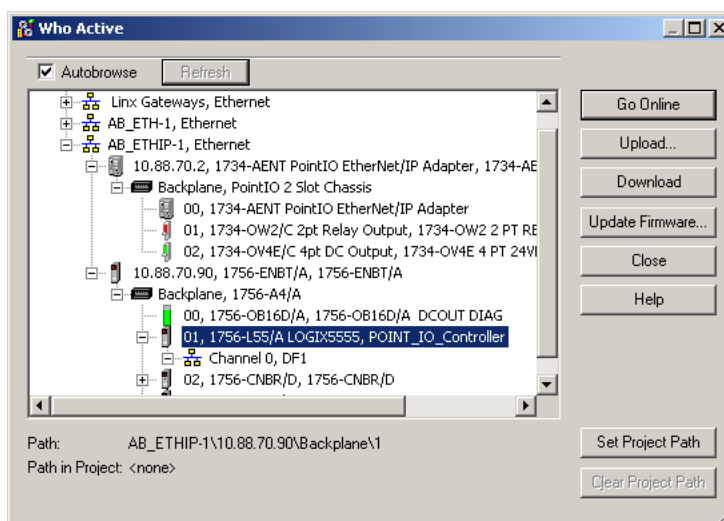


- Choose **Finish**.
- Choose **File>Save** and enter the name and location of the RSLogix 5000 file.

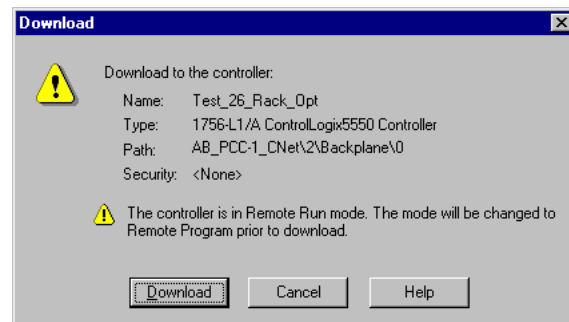
Download the Program to the Controller

Follow this procedure to download the program we just saved to the ControlLogix controller.

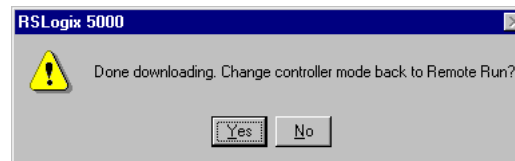
- From the main menu, choose **Communications>Who-Active**.
- Navigate to select the slot where the processor is located in the chassis.
- Choose **Set Project Path**.
- Choose **Download**.



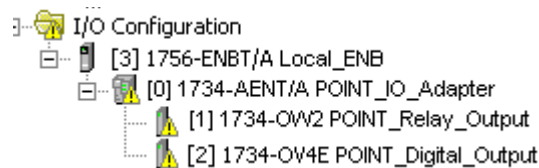
5. Choose Download.



You see this window.



Notice that the 1756-ENBT Bridge is now online. If yellow triangles are present, see the following section.

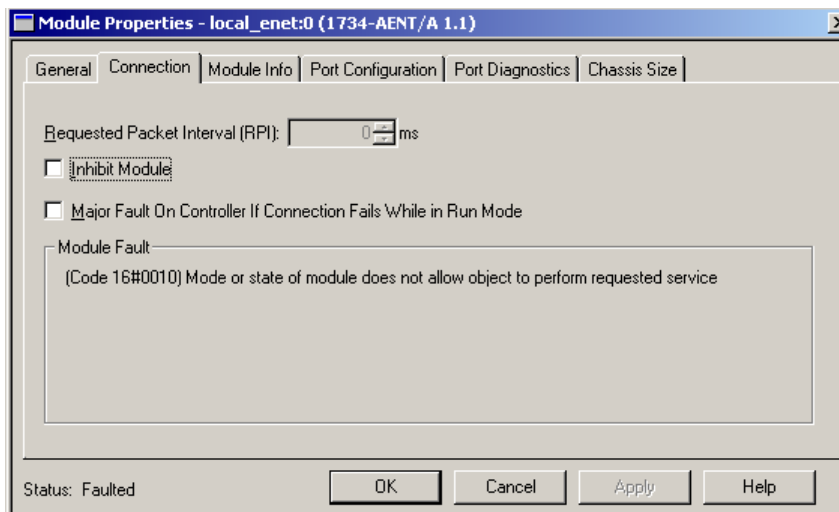


Verify the Module Chassis Size

You have now built the I/O tree in RSLogix 5000, and the RSLogix 5000 software used the chassis size from the 1734-AENT General tab. Now you need to download this new chassis size value into the 1734-AENT adapter hardware. This procedure will synchronize the chassis size value from the RSLogix 5000 software into the 1734-AENT hardware. You must be online to perform this procedure.

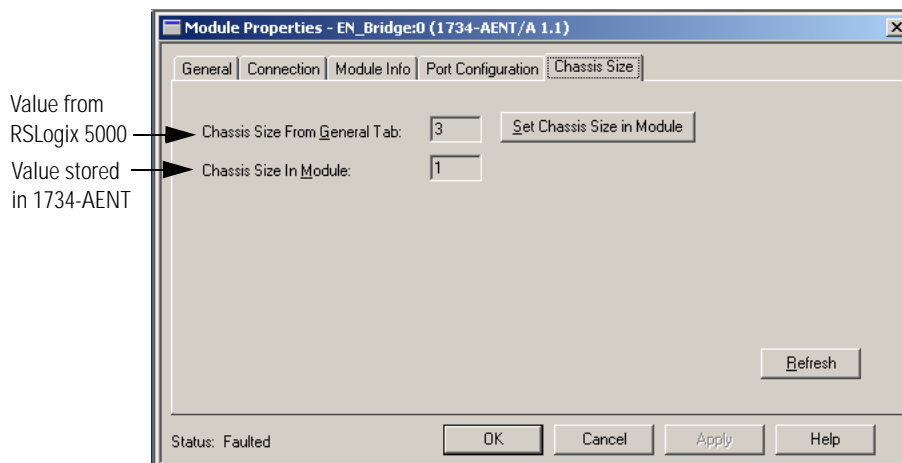
1. Verify that RSLogix 5000 is online.
2. Right click on the 1734-AENT under I/O Configuration in the Project window.
3. Select **Properties**.
4. Click the **Connection** tab.

You see the Module Fault error code.

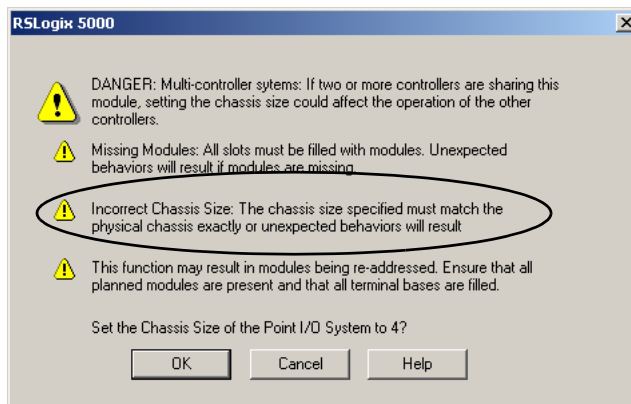


5. Click the Chassis Size tab.

6. Click Set Chassis Size in Module.

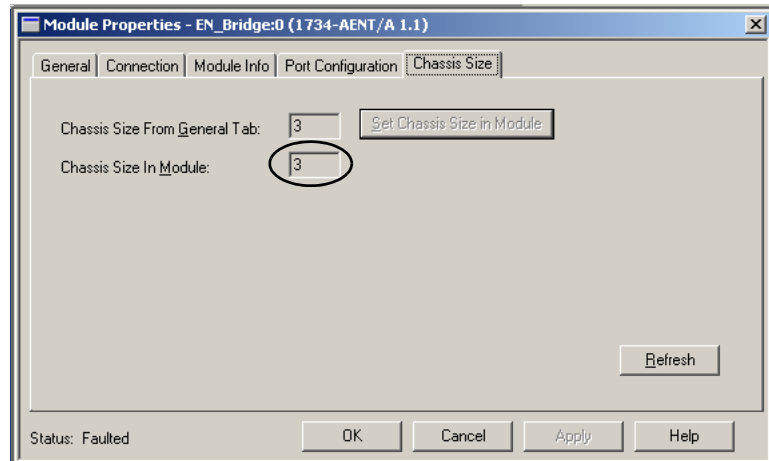


7. Read and acknowledge the warning screen.



8. Click **OK** to continue.

Notice the chassis size in the module has been modified to 3.



9. Click **OK**.

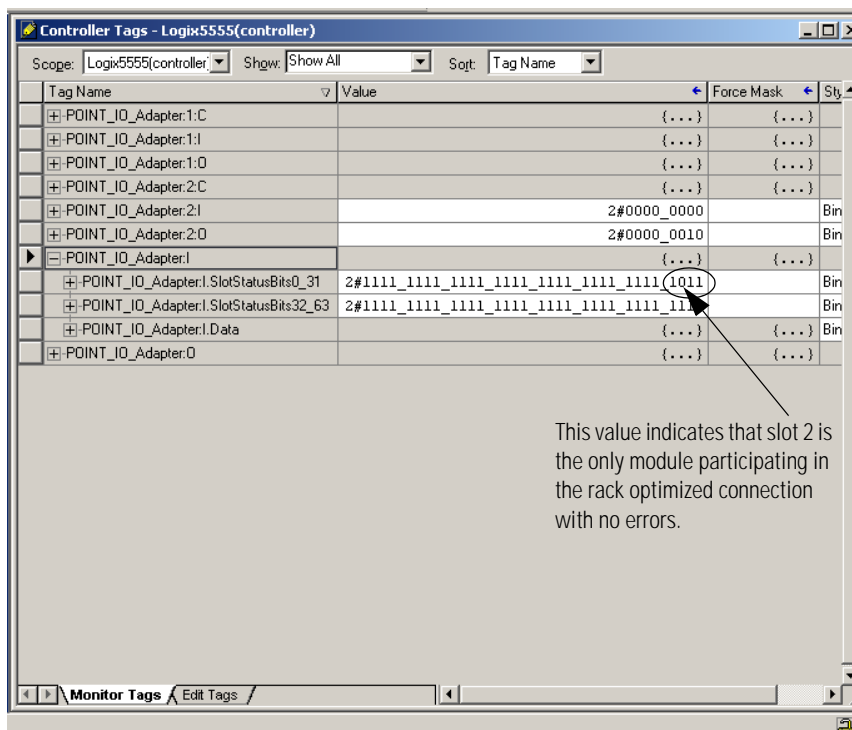
At this point, your PointBus status LED should be solid green. All the yellow triangles in your I/O configuration should be gone.

10. Click **OK** to close the window.
11. Click **File>Save** to save the project.

Access Module Data via the 1734-AENT Adapter

Use the following information to use the 1734 POINT I/O Ethernet adapter module data in the ladder logic program.

- POINT_IO_Adapter = the name you gave to your Ethernet adapter
- # = slot number of POINT I/O module
- C = configuration, I = input, O = output



Use the controller tags in your ladder program to read input data or write output data.

- For RSLogix 5000 programming instructions, refer to RSLogix 5000 Getting Results, publication no. 9399-RLD300GR.
- For ControlLogix controller information, refer to ControlLogix System User Manual, publication no. 1756-UM001.
- Slot Status Bits: The Slot Status bits display the connection status for each of the POINT I/O modules that use a rack optimized connection. Bit 0 is reserved for the adapter and always reports a value of 1. Each of the other bits (1-63) correspond to a POINT I/O module that may be installed in the POINT I/O backplane. Note that in this example, the 1734-AENT is configured for both rack optimized and direct connections. The slot status bits indicate that the module in slot 2 is installed and operating correctly (0=module participating with no errors and 1=module not participating or connection error (typically, module removed/missing)).

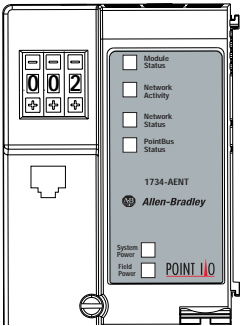
LED Status Indicators

ATTENTION



You must use Series C POINT I/O modules with the 1734-AENT adapter. Series A or B POINT I/O modules will not work with this adapter.

Interpret the Status Indicators



Module Status
Network Activity
Network Status
PointBus Status

System Power
Field Power

43248aent

Indication	Probable Cause
System Power	
Off	Not active; field power is off or dc-dc converter problem
Green	System power on; dc-dc converter active (5V dc)
Field Power	
Off	Not active; field power is off
Green	Power on; 24V dc present

Indication	Probable Cause
Module Status	
Off	No power applied to device
Flashing Red/Green	LED powerup test (module self-test)
Green	Device is operating normally
Flashing Red	Recoverable fault has occurred: Firmware (NVS) update

Indication	Probable Cause
Solid Red	Unrecoverable fault has occurred: <ul style="list-style-type: none"> • Self-test failure (checksum failure, or ramtest failure at powerup) • Firmware fatal error
Network Status	
Off	Device not initialized. The module does not have an IP address
Flashing Green	No CIP connections. Device has an IP address, but no CIP connections are established
Green	CIP connections. Device on-line and has an IP address, and CIP connections are established
Flashing Red	One or more Ethernet connections has timed-out
Solid Red	No link. The module is not physically connected to a powered Ethernet Device
Flashing Red/Green	The module is performing a self-test (only occurs during powerup test)
Network Activity	
Off	No link established
Flashing Green/Off	Transmit or receive activity
Steady Green	Link established
PointBus Status	
Off	Device not powered - check module status indicator
Flashing Red/Green	LED powerup test
Flashing Red	Recoverable fault has occurred: <ul style="list-style-type: none"> • at powerup the number of expected modules does not equal the number of modules present • a module is missing • node fault (I/O connection timeout)
Red	Unrecoverable fault has occurred: <ul style="list-style-type: none"> • the adapter is bus off • the adapter has failed its duplicate MAC ID check
Flashing Green	Adapter online with no PointBus connections established. Adapter chassis size has not been configured
Green	Adapter online with PointBus connections established (normal operation, run mode)

Safety Approvals and Specifications

ATTENTION



You must use Series C POINT I/O modules with the 1734-AENT adapter. Series A or B POINT I/O modules will not work with this adapter.

Safety Approvals

Safety Approval information for the 1734-AENT is below.

The following information applies when operating this equipment in hazardous locations:	Informations sur l'utilisation de cet équipement en environnements dangereux:
<p>Products marked "CL I, DIV 2, GP A, B, C, D" are suitable for use in Class I Division 2 Groups A, B, C, D, Hazardous Locations and nonhazardous locations only. Each product is supplied with markings on the rating nameplate indicating the hazardous location temperature code. When combining products within a system, the most adverse temperature code (lowest "T" number) may be used to help determine the overall temperature code of the system. Combinations of equipment in your system are subject to investigation by the local Authority Having Jurisdiction at the time of installation.</p>	<p>Les produits marqués "CL I, DIV 2, GP A, B, C, D" ne conviennent qu'à une utilisation en environnements de Classe I Division 2 Groupes A, B, C, D dangereux et non dangereux. Chaque produit est livré avec des marquages sur sa plaque d'identification qui indiquent le code de température pour les environnements dangereux. Lorsque plusieurs produits sont combinés dans un système, le code de température le plus défavorable (code de température le plus faible) peut être utilisé pour déterminer le code de température global du système. Les combinaisons d'équipements dans le système sont sujettes à inspection par les autorités locales qualifiées au moment de l'installation.</p>
<div data-bbox="402 1381 492 1413" data-label="Section-Header"> <h4>WARNING</h4> </div> <div data-bbox="396 1423 482 1503" data-label="Image"> </div> <div data-bbox="557 1350 906 1925" data-label="Text"> <p>EXPLOSION HAZARD - Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous. Do not disconnect connections to this equipment unless power has been removed or the area is known to be nonhazardous. Secure any external connections that mate to this equipment by using screws, sliding latches, threaded connectors, or other means provided with this product. Substitution of components may impair suitability for Class I, Division 2. If this product contains batteries, they must only be changed in an area known to be nonhazardous.</p> </div>	<div data-bbox="946 1381 1052 1413" data-label="Section-Header"> <h4>AVERTISSEMENT</h4> </div> <div data-bbox="958 1423 1044 1503" data-label="Image"> </div> <div data-bbox="1092 1350 1464 1925" data-label="Text"> <p>RISQUE D'EXPLOSION – Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher l'équipement. Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher les connecteurs. Fixer tous les connecteurs externes reliés à cet équipement à l'aide de vis, loquets coulissants, connecteurs filetés ou autres moyens fournis avec ce produit. La substitution de composants peut rendre cet équipement inadapté à une utilisation en environnement de Classe 1, Division 2. S'assurer que l'environnement est classé non dangereux avant de changer les piles.</p> </div>

Specifications

Specifications information for the 1734-AENT is below.

Specifications - 1734-AENT EtherNet/IP Adapter																																																									
Expansion I/O Capacity	<p>Maximum of 63 modules Maximum of 5 Rack Optimized connections (for digital modules only) Maximum of 25 direct connections 1734-AENT backplane current output = 1.0A. The actual number of modules can vary. Add up the current requirements of the modules you want to use to make sure they do not exceed the amperage limit of 1.0A for the 1734-AENT. Backplane current can be extended beyond 1.0A by using 1734-EP24DC backplane extension Power Supplies. Add multiple 1734-EP24DC modules to reach the 63 module maximum).</p> <table> <tr> <th>Cat. No.</th><th>PointBus Current Requirements</th></tr> <tr><td>1734-IB2</td><td>75mA</td></tr> <tr><td>1734-IB4</td><td>75mA</td></tr> <tr><td>1734-IV2</td><td>75mA</td></tr> <tr><td>1734-IV4</td><td>75mA</td></tr> <tr><td>1734-OB2E</td><td>75mA</td></tr> <tr><td>1734-OB2EP</td><td>75mA</td></tr> <tr><td>1734-OB4E</td><td>75mA</td></tr> <tr><td>1734-OV2E</td><td>75mA</td></tr> <tr><td>1734-OV4E</td><td>75mA</td></tr> <tr><td>1734-OW2</td><td>80mA</td></tr> <tr><td>1734-OX2</td><td>100mA</td></tr> <tr><td>1734-IE2C</td><td>75mA</td></tr> <tr><td>1734-OE2C</td><td>75mA</td></tr> <tr><td>1734-IE2V</td><td>75mA</td></tr> <tr><td>1734-OE2V</td><td>75mA</td></tr> <tr><td>1734-IA2</td><td>75mA</td></tr> <tr><td>1734-IM2</td><td>75mA</td></tr> <tr><td>1734-OA2</td><td>75mA</td></tr> <tr><td>1734-IJ2</td><td>160mA</td></tr> <tr><td>1734-IK2</td><td>160mA</td></tr> <tr><td>1734-IR2</td><td>220mA</td></tr> <tr><td>1734-IT2I</td><td>175mA</td></tr> <tr><td>1734-SSI</td><td>110mA</td></tr> <tr><td>1734-VHSC5</td><td>180mA</td></tr> <tr><td>1734-VHSC24</td><td>180mA</td></tr> <tr><td>1734-232ASC</td><td>75mA</td></tr> <tr><td>1734-485ASC</td><td>75mA</td></tr> </table>	Cat. No.	PointBus Current Requirements	1734-IB2	75mA	1734-IB4	75mA	1734-IV2	75mA	1734-IV4	75mA	1734-OB2E	75mA	1734-OB2EP	75mA	1734-OB4E	75mA	1734-OV2E	75mA	1734-OV4E	75mA	1734-OW2	80mA	1734-OX2	100mA	1734-IE2C	75mA	1734-OE2C	75mA	1734-IE2V	75mA	1734-OE2V	75mA	1734-IA2	75mA	1734-IM2	75mA	1734-OA2	75mA	1734-IJ2	160mA	1734-IK2	160mA	1734-IR2	220mA	1734-IT2I	175mA	1734-SSI	110mA	1734-VHSC5	180mA	1734-VHSC24	180mA	1734-232ASC	75mA	1734-485ASC	75mA
Cat. No.	PointBus Current Requirements																																																								
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1734-VHSC24	180mA																																																								
1734-232ASC	75mA																																																								
1734-485ASC	75mA																																																								
Ethernet Communication Rate	10/100Mbps/s, half or full-duplex																																																								
Module Location	Starter module - left side of the 1734 system																																																								
Power Supply Specifications																																																									
Input Voltage Rating	24V dc nominal 10-28.8V dc range																																																								
Field Side Power Requirements	24V dc (+20% = 28.8V dc maximum) @ 400mA maximum																																																								
Inrush Current	6A maximum for 10ms																																																								
Interruption	Output voltage will stay within specifications when input drops out for 10ms at 10V with maximum load																																																								

General Specifications	
Indicators	3 red/green status indicators Adapter status PointBus status Network status 3 green status indicators: Network activity status System Power (PointBus 5V power) Field Power (24V from field supply)
Power Consumption	4.5W maximum @ 28.8V dc
Power Dissipation	15.5W maximum @ 28.8V
PointBus Output Current	1A maximum @ 5V dc $\pm 5\%$ (4.75 - 5.25)
Input Overvoltage Protection	Reverse polarity protected
Thermal Dissipation	9.5 BTU/hr maximum @ 28.8V dc
Isolation Voltage	Tested to withstand 1250V rms for 60s
Field Power Bus Nominal Voltage Supply Voltage Range Supply Current	24V dc 10-28.8V dc range, 10A maximum
Dimensions Inches (Millimeters)	3.0H x 2.16W x 5.25L (76.2H x 54.9W x 133.4L)
Environmental Conditions	
Operational Temperature	IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): -20 to 55°C (-4 to 131°F)
Storage Temperature	IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock): -40 to 85°C (-40 to 185°F)
Relative Humidity	IEC 60068-2-30 (Test Db, Unpackaged Nonoperating Damp Heat): 5 to 95% noncondensing
Shock Operating Nonoperating	IEC 60068-2-27 (Test Ea, Unpackaged Shock) 30g peak acceleration 50g peak acceleration
Vibration	IEC 60068-2-6 (Test Fc, Operating) Tested 5g @ 10-500Hz
ESD Immunity	IEC 61000-4-2: 4kV contact discharges 8kV air discharges
Radiated RF Immunity	IEC 61000-4-3: 10V/m with 1kHz sine-wave 80%AM from 30MHz to 2000MHz 10V/m with 200Hz 50% pulse 100%AM from 900MHz
EFT/B Immunity	IEC 61000-4-4: ± 4 kV at 2.5kHz on power ports ± 2 kV at 5.0kHz on signal ports

Surge Transient Immunity	IEC 61000-4-5: $\pm 1\text{kV}$ line-line(DM) and $\pm 2\text{kV}$ line-earth(CM) on signal ports $\pm 1\text{kV}$ line-line(DM) and $\pm 2\text{kV}$ line-earth(CM) on power ports
Conducted RF Immunity	IEC 61000-4-6: 10Vrms with 1kHz sine-wave 80% AM from 150kHz to 80MHz
Emissions	CISPR 11: Group 1, Class A
Enclosure Type Rating	None (open-style)
Conductors Wire Size	14- 22 AWG ($2.5\text{-}0.25\text{mm}^2$) solid or stranded wire rated at 75°C or higher 3/64 inch (1.2mm) insulation maximum
Category	2 ¹
Ethernet Connector	RJ-45, Category 5
Terminal Base Screw Torque	7 pound-inches (0.8Nm)
Mass	9.0 oz/255 grams
Certifications (when product is marked)	<div> <div>cUL-us</div> <div>UL Listed Industrial Control Equipment, certified for US and Canada</div> </div> <div> <div>cUL-us</div> <div>UL Listed for Class I, Division 2, Groups A, B, C, and D Hazardous locations, certified for US and Canada</div> </div> <div> <div>CE²</div> <div>European Union 89/336/EEC EMC Directive, compliant with: EN 61000-6-4; Industrial Emissions EN 50082-2; Industrial Immunity EN 61326; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity</div> </div> <div> <div>C-Tick²</div> <div>Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions</div> </div> <div> <div>ODVA</div> <div>ODVA conformance tested to EtherNet/IP specifications</div> </div>

1 Use this conductor category information for planning conductor routing as described in publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines."

2 See the Product Certification link at www.ab.com for Declarations of Conformity, Certificates, and other certification details.

1734-AENT Adapter Web Pages

Web Page Diagnostics

The 1734-AENT adapter's Web pages offer extensive internal and network diagnostics. To view the Web pages, enter the adapter's IP address into Netscape or Microsoft Internet Explorer. You will see the Web page shown below:

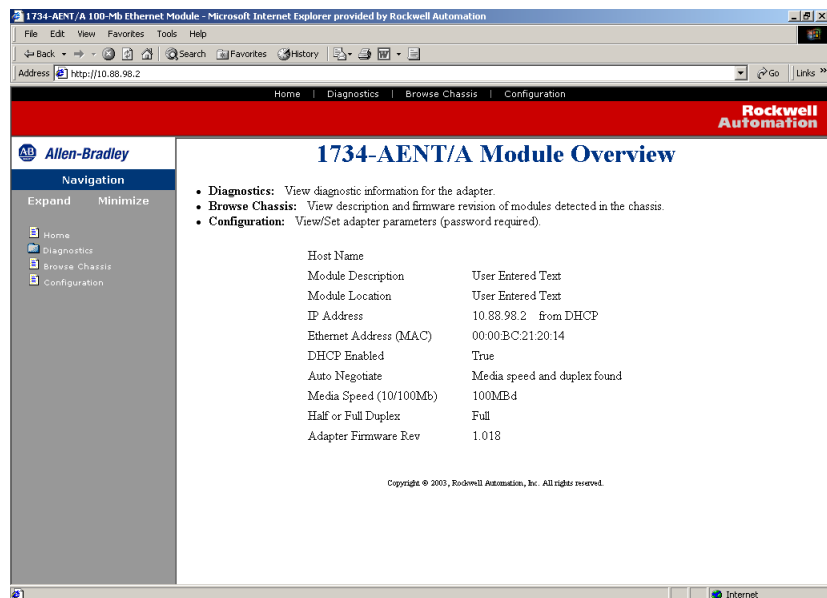
IMPORTANT

Make sure that your PC Internet LAN setting and your TCP/IP settings are configured to access the subnet on which your adapter communicates.

ATTENTION



You must use Series C POINT I/O modules with the 1734-AENT adapter. Series A or B POINT I/O modules will not work with this adapter.



The adapter's Web pages provide the following:

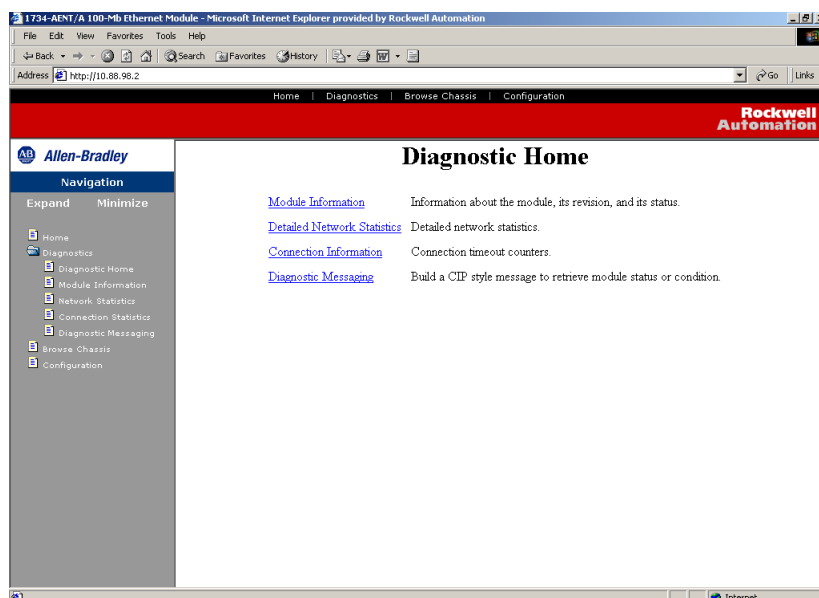
- Diagnostic information
- Browse Chassis capability
- Configuration information

Some examples of these pages are shown on the following figures.

Diagnostic Information

From the **Diagnostic Home** page you can access other diagnostic web pages, including:

- Module Information
- Detailed Network Statistics
- Connection Information
- Diagnostic Messaging

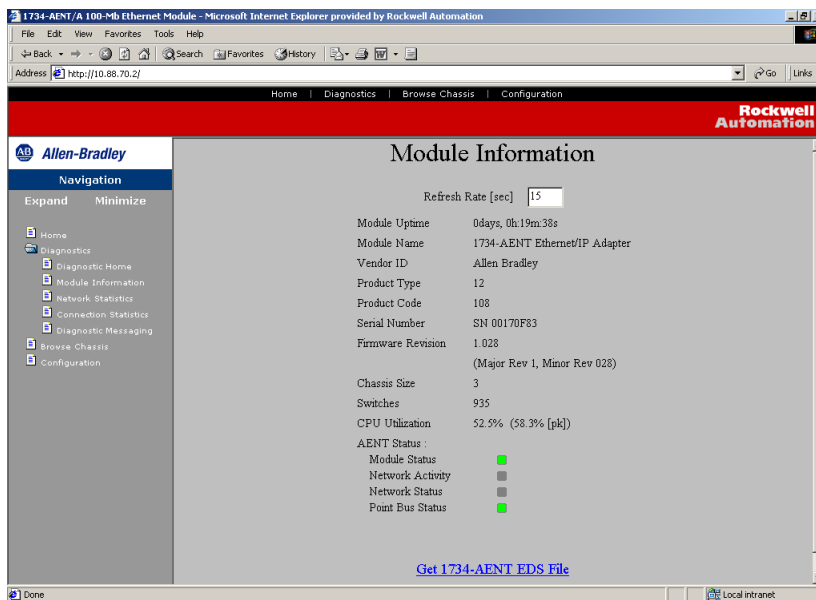


Module Information

On the **Module Information** page, you can obtain module specifications, such as the module name, module uptime information, vendor ID, product type, product code, firmware revision, status switches, and CPU utilization.

EDS Files

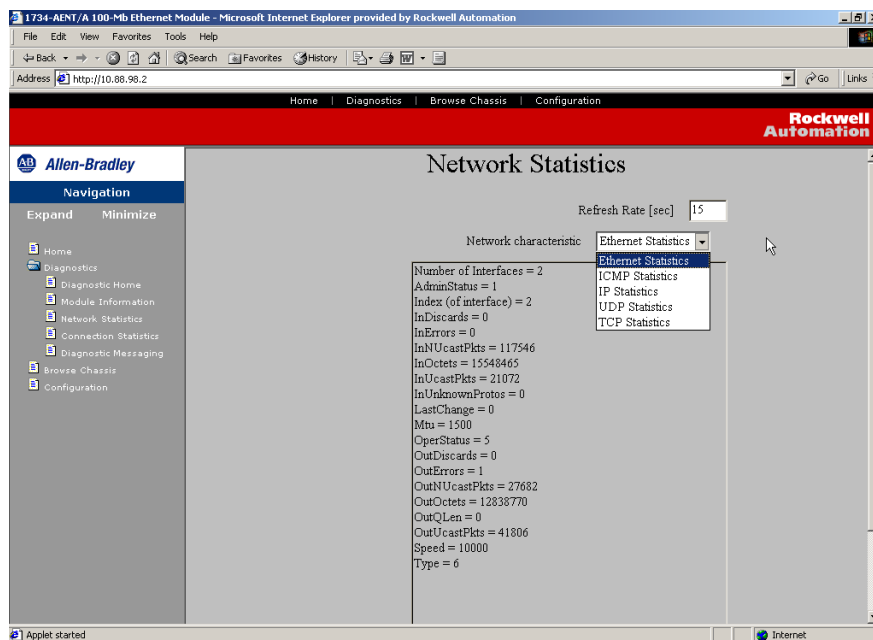
You can access the 1734-AENT EDS files from the **Module Information** page. These EDS files are coming from your adapter. You can also be directed to access other modules' EDS files from the **Module Information** page. Click on the **Get 1734-AENT EDS File** link to download a zip file that will contain the adapter's EDS file.



Network Statistics

The **Network Statistics** page provides information that echoes the state of the module. You can obtain statistics for the following networks:

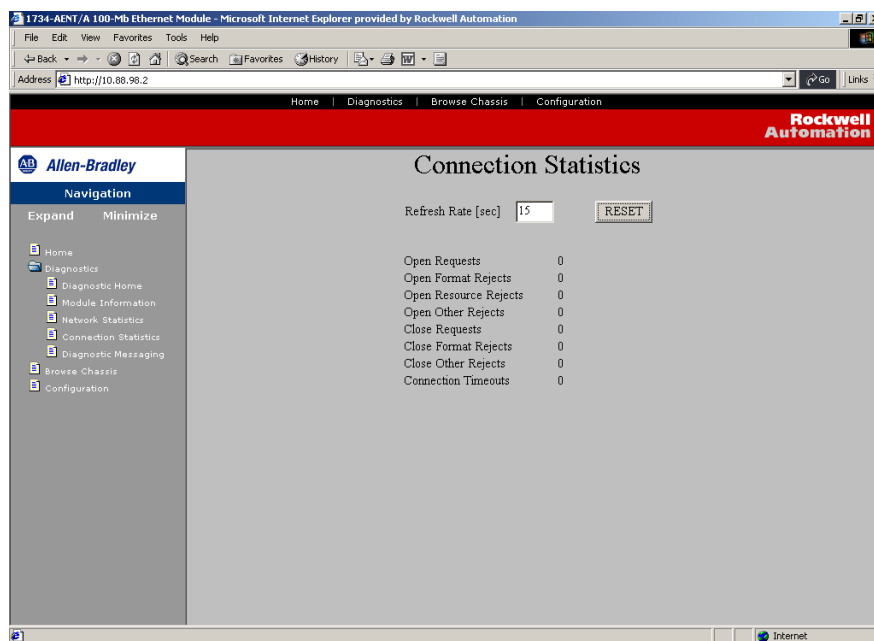
- Ethernet
- ICMP
- IP
- UDP
- TCP



Connection Statistics

The **Connection Statistics** page list CIP-related statistic and connection activity. You can obtain the following statistics:

- requests
- rejects
- timeouts



Diagnostic Messaging

The **Diagnostic Messaging** page lets you retrieve module status or conditions, such as:

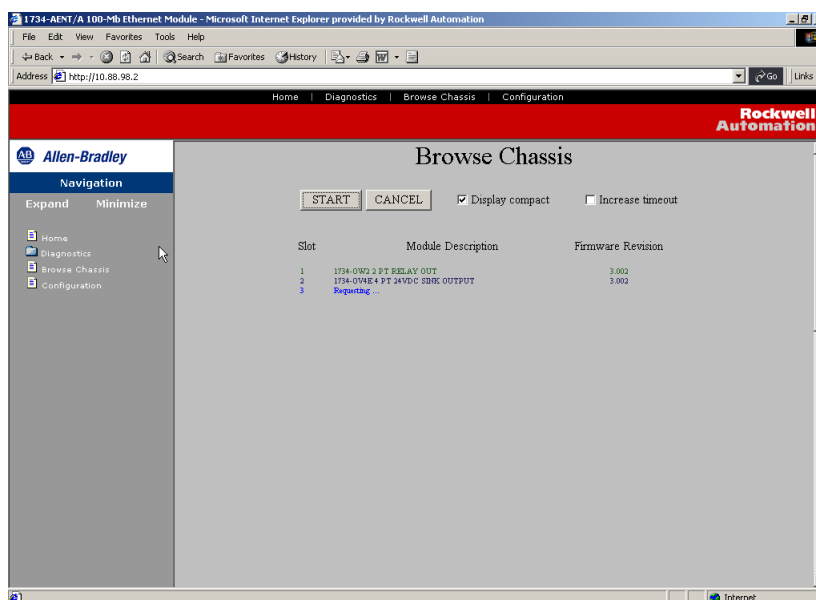
- Service
- I/O slot position
- Class
- Instance
- Attribute
- Timeout

The screenshot shows a web browser window titled "1734-AENT/A 100-Mb Ethernet Module - Microsoft Internet Explorer". The address bar shows "http://10.88.70.2". The page has a red header with "Rockwell Automation" on the right and navigation links "Home | Diagnostics | Browse Chassis | Configuration" in the center. On the left is a navigation pane with the "Allen-Bradley" logo and a list of links: "Home", "Diagnostics", "Diagnostic Home", "Module Information", "Network Statistics", "Connection Statistics", "Diagnostic Messaging", "Browse Chassis", and "Configuration". The "Diagnostic Messaging" link is selected. The main content area is titled "Diagnostic Messaging" and contains a form with the following fields: "Service" (a dropdown menu set to "Get Attribute Single"), "I/O Module Slot Position (0-63 decimal)" (a text box with "63"), "Class (decimal)" (a text box with "1"), "Instance (decimal)" (a text box with "1"), "Attribute (decimal)" (a text box with "1"), and "Timeout" (a text box with "5"). A "Submit" button is located below the "Timeout" field. Below the form is a large empty rectangular box for the response.

Browse Chassis

Browse the chassis to see what modules are present on the system. A query will run from slot 1 to slot 63. The **Browse Chassis** page will display the modules that were found based on this query. The **Browse Chassis** page provides an easy and helpful way to see what modules the adapter is recognizing on your system.

- Select the **Display compact** button so a check mark appears to decrease the font size. This may make it easier to read the screen.
- Select the **Increase timeout** button so a check mark appears to increase the time of the browse query. This will increase the time the modules are given to respond to the query. This function is useful when you are browsing a busy system.



Configuration

The **Configuration** page provides a way for you to configure the TCP/IP parameters for your adapter, such as, Host Name, IP Address, Gateway Address, Subnet Mask, etc.

By default, the password for the screen is **password** (case sensitive). Once you enter the password and click the **Submit** button, you can enter a new password. Click the **Change** button to accept the new password.

Entering module information in the **Host Name**, **Module Description**, and **Module Location** fields. The description and location will help you quickly and easily identify where the module is in the facility.

As you enter the parameters in the field and press the **Enter** or **Update** (on the web page) key, the field will turn blue to indicate that the value is accepted.

For security purposes, you can disable the adapter's web pages. Click in the box to the right of **Disable Web Server** so a check mark appears to disable this page.

You have 10 minutes to make changes on this page and to save the new data. A timer on the top of the page helps you keep track of the elapsed time. The timer is enabled after you enter the password and click the **Submit** button.

IMPORTANT

The values on this page are in non-volatile memory. Changes to these parameters do not take effect until the 1734-AENT has been reset or the power has been cycled.

IMPORTANT

If you set the thumbwheels on the 1734-AENT to the value 888 and then power cycle the module, the following will occur:

- the DHCP Enabled function will be enabled (set to True)
- the Ethernet link will be negotiated automatically (the Auto Negotiate function will be set to True)
- the web server will be enabled (the Disabled Web Server function will be disabled)
- the password for this page will reset to the factory default (the word "password" is the factory default password)

Note the value of the switches before you enter the 888 value because you will return the adapter to those values once this process is complete.

Notes:

Configure the RSLinx Ethernet Communication Driver

What This Appendix Contains

In order to communicate with your 1734-AENT adapter over your network you must configure the RSLinx Ethernet communication driver (AB_ETH) or the EtherNet/IP driver (AB_ETHIP). You can configure the AB_ETH driver with the IP addresses of all the Ethernet devices on your system. You will need one of these drivers to download the example application programs in this manual.

The following table lists the contents of this appendix and where to find specific information:

For information about	See page
Install the RSLinx Software	B-1
Configure the AB_ETH Driver	B-2
Configure the AB_ETHIP Driver	B-4

ATTENTION



You must use Series C POINT I/O modules with the 1734-AENT adapter. Series A or B POINT I/O modules will not work with this adapter.

Install the RSLinx Software

Use the following procedure to install RSLinx software on your computer.

1. Insert the CD in the CD-ROM drive.

Note: The CD-ROM supports Windows Autorun. Once inserted into the CD-ROM drive, if you have Autorun configured, the installation will automatically start at the first setup screen.

If Autorun is not configured for your CD-ROM drive, go to step 2.

2. From the **Start** menu, choose **Run**.

You will see the **Run** pop-up window.

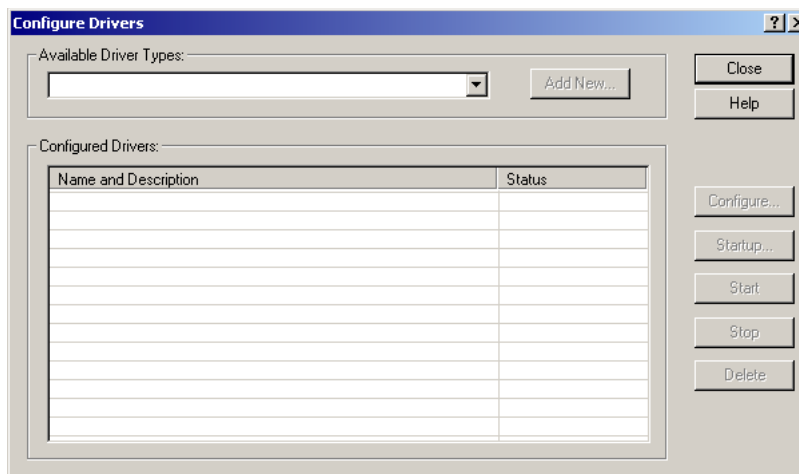
3. Type **d:/setup** (if it doesn't appear automatically), where **d:** is your CD-ROM driver letter.
4. Click on **OK**.

You will see the progress bar, followed by the welcome screen.

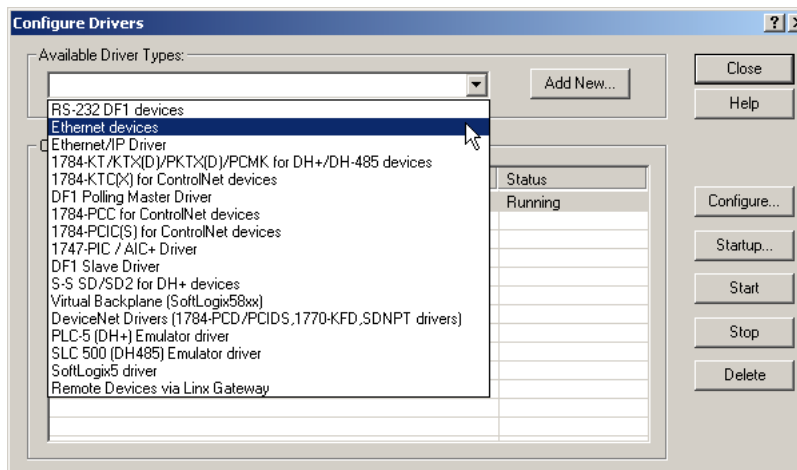
Configure the AB_ETH Driver

To configure the AB-ETH Ethernet communication driver perform the following steps:

1. Start RSLinx.
2. From the Communications menu, select Configure Drivers.

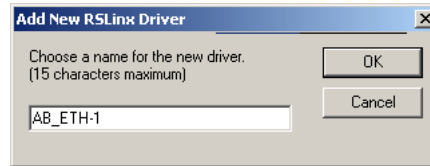


3. Click on the arrow to the right of the **Available Driver Types** box. The **Available Driver Types** list will appear.
4. Select **Ethernet Devices** and click on **Add/New**.



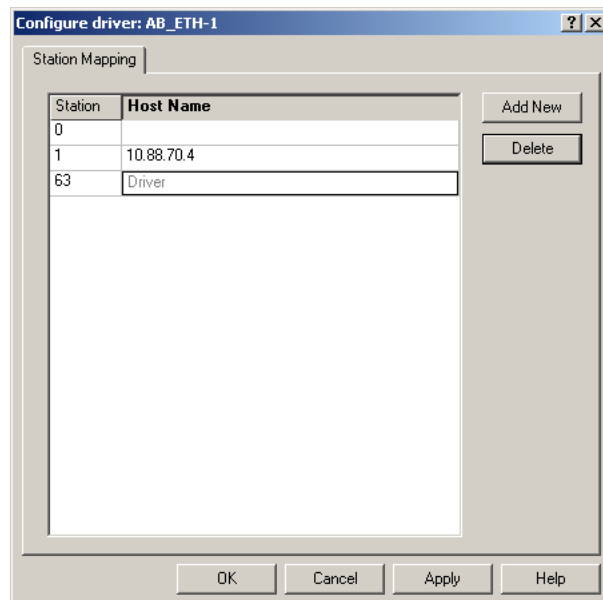
You will be prompted to name the driver.

5. Select the default driver name (e.g., AB_ETH-1) or type in your own name and click on **OK**.



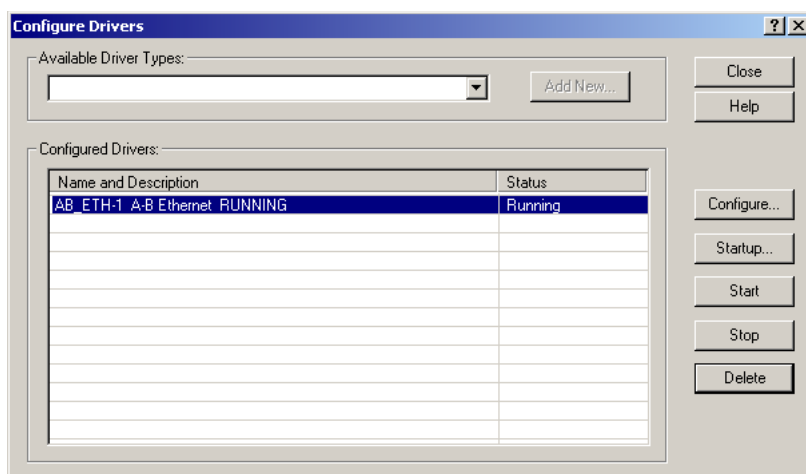
The **Configure driver** window will appear with the **Station Mapping** page open.

6. Click on **Add New** and enter the IP address or Host Name of your Ethernet device (e.g., 10.88.70.4, "Pump1", etc.).



7. Repeat step 6 for each additional Ethernet device you need to access.
8. When you are done entering the IP addresses, click on **Apply**. Then click on **OK** to close the **Configure driver** window.

The new driver will appear in the list of configured drivers. (Your list will display the drivers you have configured on your workstation.)

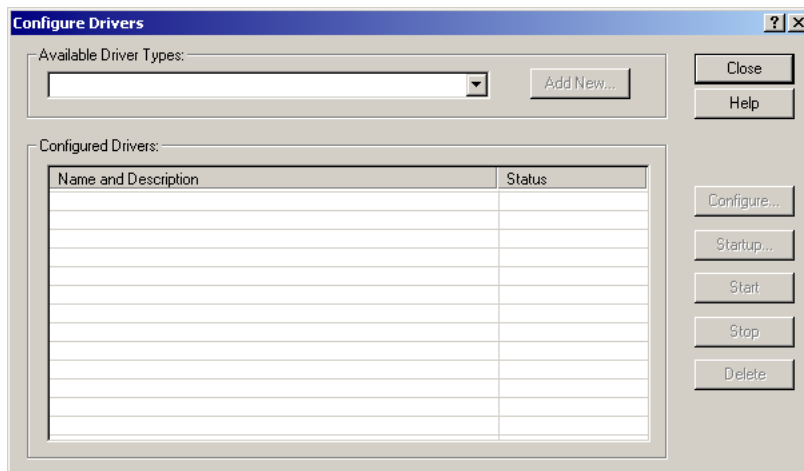


9. Close RSLinx.

Configure the AB_ETH/IP Driver

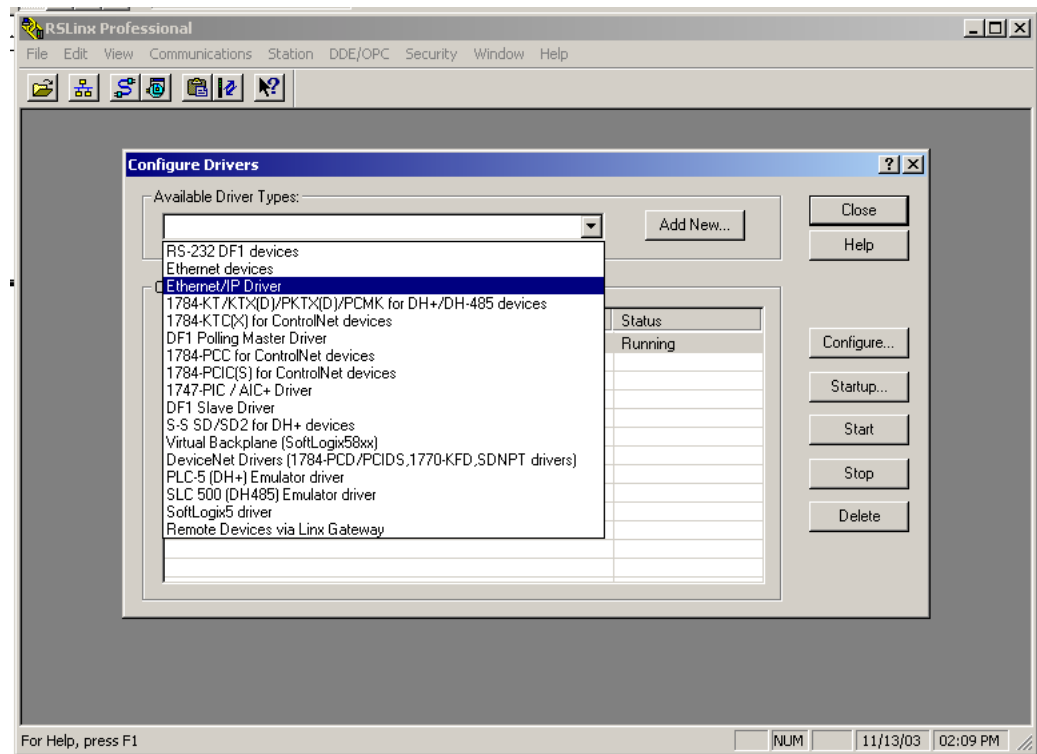
To configure the AB-ETHIP Ethernet communication driver perform the following steps:

1. Start RSLinx.
2. From the Communications menu, select **Configure Drivers**.

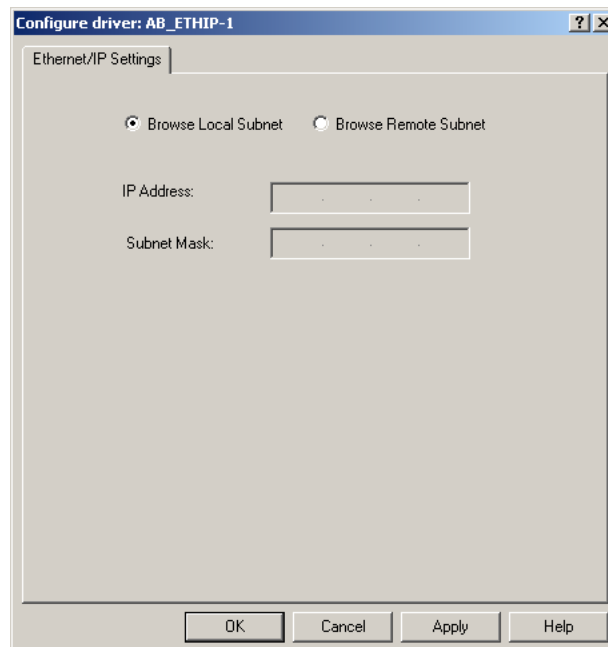


3. Click on the arrow to the right of the **Available Driver Types** box. The **Available Driver Types** list will appear.

4. Select EtherNet/IP Devices and click on Add/New.



You see this window.

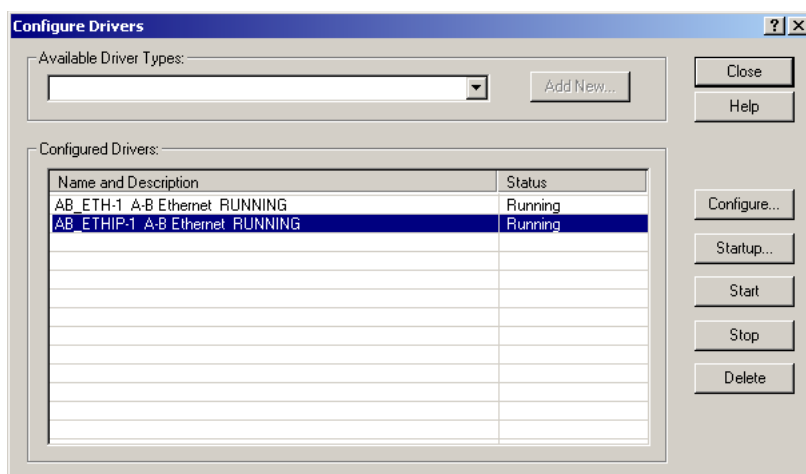


5. Make sure the Browse Local Subnet button is selected.

RSLinx will browse your local subnet and automatically read the IP address.

6. Click OK.

The AB-ETHIP driver is now configured and appears in the configured drivers window.



7. Close RSLinx.

1734-POINT I/O Module/RSLogix 5000 Controller Tag Reference

ATTENTION


You must use Series C POINT I/O modules with the 1734-AENT adapter. Series A or B POINT I/O modules will not work with this adapter.

1734 POINT I/O Catalog Numbers

1734 POINT I/O Catalog Number	RSLogix5000 Module Description
Digital Modules	
1734-IA2/C	2 POINT 120V AC Input
1734-IB2/C	2 POINT 10V-28V DC Input, Sink
1734-IB4/C	4 POINT 10V-28V DC Input, Sink
1734-IM2/C	2 POINT 240V AC Input
1734-IV2/C	2 POINT 10V-28V DC Input, Source
1734-IV4/C	4 POINT 10V-28V DC Input, Source
1734-OA2/C	2 POINT 120V AC Output
1734-OB2E/C	2 POINT 10V-28V DC Electronically Fused Output, Source
1734-OB2EP/C	2 POINT 10V-28V DC Electronically Fused Protected Output, Source
1734-OB4E/C	4 POINT 10V-28V DC Electronically Fused Output, Source
1734-OV2E/C	2 POINT 10V-28V DC Electronically Fused Output, Sink
1734-OV4E/C	4 POINT 10V-28V DC Electronically Fused Output, Sink
1734-OW2/C	2 POINT AC/DC Relay Output
1734-OX2/C	2 POINT Relay Output N.O./N.C.
Analog Modules	
1734-IE2C/C	2 Channel Analog Current Input
1734-IE2V/C	2 Channel Analog Voltage Input
1734-IR2/C	2 Channel RTD Input
1734-IT2I/C	2 Channel Thermocouple Input, Isolated
1734-OE2C/C	2 Channel Analog Current Output
1734-OE2V/C	2 Channel Analog Voltage Output

1734 POINT I/O Catalog Number	RSLogix5000 Module Description
Specialty I/O	
1734-232ASC/C	1 Channel ASCII Interface Module
1734-IJ/C	1 Channel 5V DC Encoder/Counter
1734-IK/C	1 Channel 15-24V DC Encoder/Counter
1734-SSI/C	1 Channel Synchronous Serial Interface
1734-VHSC24/C	1 Channel 15-24V DC Very High Speed Counter
1734-VHSC5/C	1 Channel 5V DC Very High Speed Counter

Note that all POINT I/O modules must be Series C or above for RSLogix5000 V.11 compatibility.

The 1734-232ASC/A (Series A) is presently the only exception to the Series C requirement. It can be used in RSLogix 5000 V.11 with a Generic Profile, OR it can be used in RSLogix 5000 V.12 with a Thin Profile.

Valid Number Ranges for RSLogix 5000 Data Types

Type	Number of Bits	Range
BIT	1 Bit	0 or 1
SINT	8 Bit	-128 to +127
INT	16 Bit	-32,768 to 32,767
DINT	32 Bit	-2,147,483,648 to 2,147,483,647

Accepted parameter values are dependent on POINT I/O Module type and Tag type.

Discrete 2 POINT Input

1734-IA2

2 POINT 120V AC Input

1734-IB2

2 POINT 10V-28V DC Input, Sink

1734-IM2

2 POINT 240V AC Input

1734-IV2

2 POINT 10V-28V DC Input, Source

Configuration Data	Data Type	Default Value	Valid Data Values
Filter Off On Time - POINT 0	INT	1,000	-32,768 to 32,767 μ s * (0 - 65,535)
Filter On Off Time - POINT 0	INT	1,000	-32,768 to 32,767 μ s * (0 - 65,535)
Filter Off On Time - POINT 1	INT	1,000	-32,768 to 32,767 μ s * (0 - 65,535)
Filter On Off Time - POINT 1	INT	1,000	-32,768 to 32,767 μ s * (0 - 65,535)

Input Data	Data Type	Default Value	Valid Data Values
Input Data - POINT 0, 1	SINT, BIT	0	0=Off 1=On

Output Data	Data Type	Default Value	Valid Data Values
None			

* POINT I/O Modules support the Unsigned Integer data type UINT (0-65,535 range).

RSLogix 5000 supports the signed Integer data type INT (-32,768 to +32,767 range).

Filter Time Note:

To enter Filter values from +32,768 to +65,535 μ s, use this conversion formula:

Desired Filter Value (in μ s) - 65536 = Entered Filter Value (in μ s).

Example: For a 40ms filter time, 40000 - 65536 = -25536

Discrete 4 POINT Input

1734-IB4

4 POINT 10V-28V DC Input, Sink

1734-IV4

4 POINT 10V-28V DC Input, Source

Configuration Data	Data Type	Default Value	Valid Data Values
Filter Off On Time - POINT 0	INT	1,000	-32,768 to 32,767 μ S * (0 - 65,535)
Filter On Off Time - POINT 0	INT	1,000	-32,768 to 32,767 μ S * (0 - 65,535)
Filter Off On Time - POINT 1	INT	1,000	-32,768 to 32,767 μ S * (0 - 65,535)
Filter On Off Time - POINT 1	INT	1,000	-32,768 to 32,767 μ S * (0 - 65,535)
Filter Off On Time - POINT 2	INT	1,000	-32,768 to 32,767 μ S * (0 - 65,535)
Filter On Off Time - POINT 2	INT	1,000	-32,768 to 32,767 μ S * (0 - 65,535)
Filter Off On Time - POINT 3	INT	1,000	-32,768 to 32,767 μ S * (0 - 65,535)
Filter On Off Time - POINT 3	INT	1,000	-32,768 to 32,767 μ S * (0 - 65,535)

Input Data	Data Type	Default Value	Valid Data Values
Input Data - POINT 0, 1, 2, 3	SINT, BIT	0	0=Off 1=On

Output Data	Data Type	Default Value	Valid Data Values
None			

* POINT I/O Modules support the Unsigned Integer data type UINT (0-65,535 range).

RSLogix 5000 supports the signed Integer data type INT (-32,768 to +32,767 range).

Filter Time Note

To enter Filter values from +32,768 to +65,535 μ S, use this conversion formula:

Desired Filter Value (in μ S) - 65536 = Entered Filter Value (in μ S).
Example: For a 40ms filter time, 40000 - 65536 = -25536

Discrete 2 POINT Output – Without Diagnostic Status

1734-OA2

2 POINT 120V AC Output

1734-OW2

2 POINT AC/DC Relay Output

1734-OX2

2 POINT Relay Output N.O./N.C.

Configuration Data	Data Type	Default Value	Valid Data Values
Fault Mode - POINT 0, 1	SINT, BIT	0	0=Fault Value 1=Hold Last State
Fault Value - POINT 0, 1	SINT, BIT	0	0=Off 1=On
Program Mode - POINT 0, 1	SINT, BIT	0	0=Program Value 1=Hold Last State
Program Value - POINT 0, 1	SINT, BIT	0	0=Off 1=On

Input Data	Data Type	Default Value	Valid Data Values
None			

Output Data	Data Type	Default Value	Valid Data Values
Output Data - POINT 0, 1	SINT, BIT	0	0=Off 1=On

Discrete 2 POINT Output – With Over Load and Open Load Diagnostic Status

1734-OB2E

2 POINT 10V-28V DC Electronically Fused Output, Source

1734-OB2EP

2 POINT 10V-28V DC Electronically Fused Protected Output, Source

Configuration Data	Data Type	Default Value	Valid Data Values
Fault Mode - POINT 0, 1	SINT, BIT	0	0=Fault Value 1=Hold Last State
Fault Value - POINT 0, 1	SINT, BIT	0	0=Off 1=On
Program Mode - POINT 0, 1	SINT, BIT	0	0=Program Value 1=Hold Last State
Program Value - POINT 0, 1	SINT, BIT	0	0=Off 1=On
No Load Enable - POINT 0, 1 (Wire Off Diagnostic)	SINT, BIT	1	0=Disabled 1=Enabled
Auto Restart Enable - POINT 0, 1 (Over Load Behavior)	SINT, BIT	0	0=Latch Off 1=Auto Retry
Fault Latch Enable - POINT 0, 1 (Open Load or Over Load)	SINT, BIT	0	0=No Latching 1=Alarms Latch

Input Data	Data Type	Default Value	Valid Data Values
Status Data - POINT 0, 1 (Open Load or Over Load)	SINT, BIT	0	0=Off 1=On (Load Fault)

Output Data	Data Type	Default Value	Valid Data Values
Output Data - POINT 0, 1	SINT, BIT	0	0=Off 1=On

Discrete 2 POINT Output – With Over Load Diagnostic Status

1734-OV2E

2 POINT 10V-28V DC Electronically Fused Output, Sink

Configuration Data	Data Type	Default Value	Valid Data Values
Fault Mode - POINT 0, 1	SINT, BIT	0	0=Fault Value 1=Hold Last State
Fault Value - POINT 0, 1	SINT, BIT	0	0=Off 1=On
Program Mode - POINT 0, 1	SINT, BIT	0	0=Program Value 1=Hold Last State
Program Value - POINT 0, 1	SINT, BIT	0	0=Off 1=On
Auto Restart Enable - POINT 0, 1 (Over Load Behavior)	SINT, BIT	0	0=Latch Off 1=Auto Retry
Fault Latch Enable - POINT 0, 1 (Over Load)	SINT, BIT	0	0=No Latching 1=Alarms Latch

Input Data	Data Type	Default Value	Valid Data Values
Status Data - POINT 0, 1 (Over Load)	SINT, BIT	0	0=Off 1=On (Load Fault)

Output Data	Data Type	Default Value	Valid Data Values
Output Data - POINT 0, 1	SINT, BIT	0	0=Off 1=On

Discrete 4 POINT Output – With Over Load and Open Load Diagnostic Status

1734-OB4E

4 POINT 10V-28V DC Electronically Fused Output, Source

Configuration Data	Data Type	Default Value	Valid Data Values
Fault Mode - POINT 0, 1, 2, 3	SINT, BIT	0	0=Fault Value 1=Hold Last State
Fault Value - POINT 0, 1, 2, 3	SINT, BIT	0	0=Off 1=On
Program Mode - POINT 0, 1, 2, 3	SINT, BIT	0	0=Program Value 1=Hold Last State
Program Value - POINT 0, 1, 2, 3	SINT, BIT	0	0=Off 1=On
No Load Enable - POINT 0, 1, 2, 3 (Wire Off Diagnostic)	SINT, BIT	1	0=Disabled 1=Enabled
Auto Restart Enable - POINT 0, 1, 2, 3 (Over Load Behavior)	SINT, BIT	0	0=Latch Off 1=Auto Retry
Fault Latch Enable - POINT 0, 1, 2, 3 (Open Load or Over Load)	SINT, BIT	0	0=No Latching 1=Alarms Latch

Input Data	Data Type	Default Value	Valid Data Values
Status Data - POINT 0, 1, 2, 3 (Open Load or Over Load)	SINT, BIT	0	0=Off 1=On (Load Fault)

Output Data	Data Type	Default Value	Valid Data Values
Output Data - POINT 0, 1, 2, 3	SINT, BIT	0	0=Off 1=On

Discrete 4 POINT Output – With Over Load Diagnostic Status

1734-OV4E

4 POINT 10V-28V DC Electronically Fused Output, Sink

Configuration Data	Data Type	Default Value	Valid Data Values
Fault Mode - POINT 0, 1, 2, 3	SINT, BIT	0	0=Fault Value 1=Hold Last State
Fault Value - POINT 0, 1, 2, 3	SINT, BIT	0	0=Off 1=On
Program Mode - POINT 0, 1, 2, 3	SINT, BIT	0	0=Program Value 1=Hold Last State
Program Value - POINT 0, 1, 2, 3	SINT, BIT	0	0=Off 1=On
Auto Restart Enable - POINT 0, 1, 2, 3 (Over Load Behavior)	SINT, BIT	0	0=Latch Off 1=Auto Retry
Fault Latch Enable - POINT 0, 1, 2, 3 (Over Load)	SINT, BIT	0	0=No Latching 1=Alarms Latch

Input Data	Data Type	Default Value	Valid Data Values
Status Data - POINT 0, 1, 2, 3 (Over Load)	SINT, BIT	0	0=Off 1=On (Load Fault)

Output Data	Data Type	Default Value	Valid Data Values
Output Data - POINT 0, 1, 2, 3	SINT, BIT	0	0=Off 1=On

Analog 2 Channel Input

1734-IE2C

2 Channel Analog Current Input

Configuration Data	Data Type	Default Value	Valid Data Values
Low Engineering Channel 0	INT	3,277	-32,768 to 32,767
High Engineering Channel 0	INT	16,383	-32,768 to 32,767
Digital Filter Channel 0	INT	0	0 to 10,000 ms
Low Alarm Limit Channel 0	INT	3,113	-32,768 to 32,767
High Alarm Limit Channel 0	INT	16,547	-32,768 to 32,767
Low Low Alarm Limit Channel 0	INT	2,867	-32,768 to 32,767
High High Alarm Limit Channel 0	INT	16,793	-32,768 to 32,767
Range Type Channel 0	SINT	3	3=4-20mA 8=0-20mA
Limit Alarm Latch Channel 0	SINT	0	0=No Latching 1=Alarms Latch
Alarm Disable Channel 0	SINT	0	0=Alarms Enabled 1=Alarms Disabled
Low Engineering Channel 1	INT	3,277	-32,768 to 32,767
High Engineering Channel 1	INT	16,383	-32,768 to 32,767
Digital Filter Channel 1	INT	0	0 to 10,000 ms
Low Alarm Limit Channel 1	INT	3,113	-32,768 to 32,767
High Alarm Limit Channel 1	INT	16,547	-32,768 to 32,767
Low Low Alarm Limit Channel 1	INT	2,867	-32,768 to 32,767
High High Alarm Limit Channel 1	INT	16,793	-32,768 to 32,767
Range Type Channel 1	SINT	3	3=4-20mA 8=0-20mA
Limit Alarm Latch Channel 1	SINT	0	0=No Latching 1=Alarms Latch
Alarm Disable Channel 1	SINT	0	0=Alarms Enabled 1=Alarms Disabled
Notch Filter (Channel 0 & 1)	SINT	2	1=50Hz 2=60Hz 4=250Hz 6=500Hz
Real Time Sample (Channel 0 & 1)	INT	100	0 to 10,000 ms

1734-IE2C

2 Channel Analog Current Input

Input Data	Data Type	Default Value	Valid Data Values
Data Channel 0	INT	0	-32,768 to 32,767
Data Channel 1	INT	0	-32,768 to 32,767
Status Byte Channel 0	SINT	0	Bit 0 Fault Bit 1 Calibration Bit 2 LowAlarm Bit 3 HighAlarm Bit 4 LowLowAlarm Bit 5 HighHighAlarm Bit 6 Underrange Bit 7 Overrange
Status Byte Channel 1	SINT	0	Bit 0 Fault Bit 1 Calibration Bit 2 LowAlarm Bit 3 HighAlarm Bit 4 LowLowAlarm Bit 5 HighHighAlarm Bit 6 Underrange Bit 7 Overrange

Output Data	Data Type	Default Value	Valid Data Values
None			

1734-IE2V

2 Channel Analog Voltage Input

Configuration Data	Data Type	Default Value	Valid Data Values
Low Engineering Channel 0	INT	0	-32,768 to 32,767
High Engineering Channel 0	INT	10,000	-32,768 to 32,767
Digital Filter Channel 0	INT	0	0 to 10,000 ms
Low Alarm Limit Channel 0	INT	500	-32,768 to 32,767
High Alarm Limit Channel 0	INT	9,500	-32,768 to 32,767
Low Low Alarm Limit Channel 0	INT	200	-32,768 to 32,767
High High Alarm Limit Channel 0	INT	9,800	-32,768 to 32,767
Range Type Channel 0	SINT	2	0=-10 to +10V 2=0 to 10V
Limit Alarm Latch Channel 0	SINT	0	0=No Latching 1=Alarms Latch
Alarm Disable Channel 0	SINT	0	0=Alarms Enabled 1=Alarms Disabled
Low Engineering Channel 1	INT	0	-32,768 to 32,767
High Engineering Channel 1	INT	10,000	-32,768 to 32,767
Digital Filter Channel 1	INT	0	0 to 10,000 ms
Low Alarm Limit Channel 1	INT	500	-32,768 to 32,767
High Alarm Limit Channel 1	INT	9,500	-32,768 to 32,767
Low Low Alarm Limit Channel 1	INT	200	-32,768 to 32,767
High High Alarm Limit Channel 1	INT	9,800	-32,768 to 32,767
Range Type Channel 1	SINT	2	0=-10 to +10V 2=0 to 10V
Limit Alarm Latch Channel 1	SINT	0	0=No Latching 1=Alarms Latch
Alarm Disable Channel 1	SINT	0	0=Alarms Enabled 1=Alarms Disabled
Notch Filter (Channel 0 & 1)	SINT	2	1=50Hz 2=60Hz 4=250Hz 6=500Hz
Real Time Sample (Channel 0 & 1)	INT	100	0 to 10,000 ms

1734-IE2V

2 Channel Analog Voltage Input

Input Data	Data Type	Default Value	Valid Data Values
Data Channel 0	INT	0	-32,768 to 32,767
Data Channel 1	INT	0	-32,768 to 32,767
Status Byte Channel 0	SINT	0	Bit 0 Fault Bit 1 Calibration Bit 2 LowAlarm Bit 3 HighAlarm Bit 4 LowLowAlarm Bit 5 HighHighAlarm Bit 6 Underrange Bit 7 Overrange
Status Byte Channel 1	SINT	0	Bit 0 Fault Bit 1 Calibration Bit 2 LowAlarm Bit 3 HighAlarm Bit 4 LowLowAlarm Bit 5 HighHighAlarm Bit 6 Underrange Bit 7 Overrange

Output Data	Data Type	Default Value	Valid Data Values
None			

1734-IR2

2 Channel RTD Input

Configuration Data	Data Type	Default Value	Valid Data Values
Low Engineering Channel 0	INT	1,000	-32,768 to 32,767
High Engineering Channel 0	INT	5,000	-32,768 to 32,767
Digital Filter Channel 0	INT	0	0 to 10,000 ms
Low Alarm Limit Channel 0	INT	-32,768	-32,768 to 32,767
High Alarm Limit Channel 0	INT	32,767	-32,768 to 32,767
Low Low Alarm Limit Channel 0	INT	-32,768	-32,768 to 32,767
High High Alarm Limit Channel 0	INT	32,767	-32,768 to 32,767
Limit Alarm Latch Channel 0	SINT	0	0=No Latching 1=Alarms Latch
Alarm Disable Channel 0	SINT	0	0=Alarms Enabled 1=Alarms Disabled
Sensor Type Channel 0	SINT	1	0=Ohms 1=100 Ω Pt α385 2=200 Ω Pt α 385 5=100 Ω JPt α 3916 6=200 Ω JPt α 3916 9=10 Ω Cu α 427 10=120 Ω Ni α 672 11=100 Ω Ni α 618 12=120 Ω Ni α 618
Temperature Mode Channel 0	SINT	1	0=Custom Scale 1=°C 2=°F 3=°K 4=°R
Low Engineering Channel 1	INT	1,000	-32,768 to 32,767
High Engineering Channel 1	INT	5,000	-32,768 to 32,767
Digital Filter Channel 1	INT	0	0 to 10,000 ms
Low Alarm Limit Channel 1	INT	-32,768	-32,768 to 32,767
High Alarm Limit Channel 1	INT	32,767	-32,768 to 32,767
Low Low Alarm Limit Channel 1	INT	-32,768	-32,768 to 32,767
High High Alarm Limit Channel 1	INT	32,767	-32,768 to 32,767
Limit Alarm Latch Channel 1	SINT	0	0=No Latching 1=Alarms Latch
Alarm Disable Channel 1	SINT	0	0=Alarms Enabled 1=Alarms Disabled

1734-IR2**2 Channel RTD Input**

Configuration Data	Data Type	Default Value	Valid Data Values
Sensor Type Channel 1	SINT	1	0=Ohms 1=100 Ω Pt α385 2=200 Ω Pt α 385 5=100 Ω JPt α 3916 6=200 Ω JPt α 3916 9=10 Ω Cu α 427 10=120 Ω Ni α 672 11=100 Ω Ni α 618 12=120 Ω Ni α 618
Temperature Mode Channel 1	SINT	1	0=Custom Scale 1=°C 2=°F 3=°K 4=°R
Notch Filter (Channel 0 & 1)	SINT	1	0=50Hz 1=60Hz 2=100Hz 3=120Hz 4=200Hz 5=240Hz 6=300Hz 7=400Hz 8=480Hz

Input Data	Data Type	Default Value	Valid Data Values
Data Channel 0	INT	0	-32,768 to 32,767
Data Channel 1	INT	0	-32,768 to 32,767
Status Byte Channel 0	SINT	0	Bit 0 Fault Bit 1 Calibration Bit 2 LowAlarm Bit 3 HighAlarm Bit 4 LowLowAlarm Bit 5 HighHighAlarm Bit 6 Underrange Bit 7 Overrange
Status Byte Channel 1	SINT	0	Bit 0 Fault Bit 1 Calibration Bit 2 LowAlarm Bit 3 HighAlarm Bit 4 LowLowAlarm Bit 5 HighHighAlarm Bit 6 Underrange Bit 7 Overrange
Output Data	Data Type	Default Value	Valid Data Values
None			

1734-IT2

2 Channel Thermocouple Input, Isol.

Configuration Data	Data Type	Default Value	Valid Data Values
Cold Junction Notch Filter	SINT	1	0=50Hz 1=60Hz
Cold Junction Mode	SINT	1	0=None 1=Channel 0 2=Channel 1 3=Average Both
Low Engineering Channel 0	INT	0	-32,768 to 32,767
High Engineering Channel 0	INT	7,000	-32,768 to 32,767
Alarm Disable Channel 0	SINT	0	0=Alarms Enabled 1=Alarms Disabled
Limit Alarm Latch Channel 0	SINT	0	0=No Latching 1=Alarms Latch
Notch Filter Channel 0	SINT	1	0=50Hz 1=60Hz 2=100Hz 3=120Hz 4=200Hz 5=240Hz 6=300Hz 7=400Hz 8=480Hz
Sensor Type Channel 0	SINT	5	0=mV 1=B 2=C 3=E 4=J 5=K 6=N 7=R 8=S 9=T
Digital Filter Channel 0	INT	0	0 to 10,000 ms
Low Alarm Limit Channel 0	INT	-32,768	-32,768 to 32,767
High Alarm Limit Channel 0	INT	32,767	-32,768 to 32,767
Low Low Alarm Limit Channel 0	INT	-32,768	-32,768 to 32,767
High High Alarm Limit Channel 0	INT	32,767	-32,768 to 32,767

1734-IT2

2 Channel Thermocouple Input, Isol.

Configuration Data	Data Type	Default Value	Valid Data Values
Temperature Mode Channel 0	SINT	1	0=mV/Custom Scale 1=°C 2=°F 3=°K 4=°R
Cold Junction Enable Channel 0	SINT	1	0=Disabled 1=Enabled
Cold Junction Offset Channel 0	INT	0	0 to 7,000 (0.00-70.00)
Low Engineering Channel 1	INT	0	-32,768 to 32,767
High Engineering Channel 1	INT	7,000	-32,768 to 32,767
Alarm Disable Channel 1	SINT	0	0=Alarms Enabled 1=Alarms Disabled
Limit Alarm Latch Channel 1	SINT	0	0=No Latching 1=Alarms Latch
Notch Filter Channel 1	SINT	1	0=50Hz 1=60Hz 2=100Hz 3=120Hz 4=200Hz 5=240Hz 6=300Hz 7=400Hz 8=480Hz
Sensor Type Channel 1	SINT	5	0=mV 1=B 2=C 3=E 4=J 5=K 6=N 7=R 8=S 9=T
Digital Filter Channel 1	INT	0	0 to 10,000 ms
Low Alarm Limit Channel 1	INT	-32,768	-32,768 to 32,767
High Alarm Limit Channel 1	INT	32,767	-32,768 to 32,767
Low Low Alarm Limit Channel 1	INT	-32,768	-32,768 to 32,767
High High Alarm Limit Channel 1	INT	32,767	-32,768 to 32,767

1734-IT2

2 Channel Thermocouple Input, Isol.

Configuration Data	Data Type	Default Value	Valid Data Values
Temperature Mode Channel 1	SINT	1	0=mV/Custom Scale 1=°C 2=°F 3=°K 4=°R
Cold Junction Enable Channel 1	SINT	1	0=Disabled 1=Enabled
Cold Junction Offset Channel 1	INT	0	0 to 7,000 (0.00-70.00)

Input Data	Data Type	Default Value	Valid Data Values
Data Channel 0	INT	0	-32,768 to 32,767
Data Channel 1	INT	0	-32,768 to 32,767
Status Byte Channel 0	SINT	0	Bit 0 Fault Bit 1 Calibration Bit 2 LowAlarm Bit 3 HighAlarm Bit 4 LowLowAlarm Bit 5 HighHighAlarm Bit 6 Underrange Bit 7 Overrange
Status Byte Channel 1	SINT	0	Bit 0 Fault Bit 1 Calibration Bit 2 LowAlarm Bit 3 HighAlarm Bit 4 LowLowAlarm Bit 5 HighHighAlarm Bit 6 Underrange Bit 7 Overrange
Cold Junction Data	INT	0	-32,768 to 32,767

Output Data	Data Type	Default Value	Valid Data Values
None			

Analog 2 Channel Output

1734-OE2C

2 Channel Analog Current Output

Configuration Data	Data Type	Default Value	Valid Data Values
Fault Value Channel 0	INT	0	-32,768 to 32,767
Program Value Channel 0	INT	0	-32,768 to 32,767
Low Engineering Channel 0	INT	1,638	-32,768 to 32,767
High Engineering Channel 0	INT	8,191	-32,768 to 32,767
Low Limit Channel 0	INT	-32,768	-32,768 to 32,767
High Limit Channel 0	INT	32,767	-32,768 to 32,767
Range Type Channel 0	SINT	0	0=4-20mA 2=0-20mA
Fault Mode Channel 0	SINT	1	0=Hold Last State 1=Go to Low Clamp 2=Go to High Clamp 3=Go to Fault Value
Idle Mode Channel 0	SINT	1	0=Hold Last State 1=Go to Low Clamp 2=Go to High Clamp 3=Go to Fault Value
Limit Alarm Latch Channel 0	SINT	0	0=No Latching 1=Alarms Latch
Alarm Disable Channel 0	SINT	0	0=Alarms Enabled 1=Alarms Disabled
Fault Value Channel 1	INT	0	-32,768 to 32,767
Program Value Channel 1	INT	0	-32,768 to 32,767
Low Engineering Channel 1	INT	1,638	-32,768 to 32,767
High Engineering Channel 1	INT	8,191	-32,768 to 32,767
Low Limit Channel 1	INT	-32,768	-32,768 to 32,767
High Limit Channel 1	INT	32,767	-32,768 to 32,767
Range Type Channel 1	SINT	0	0=4-20mA 2=0-20mA
Fault Mode Channel 1	SINT	1	0=Hold Last State 1=Go to Low Clamp 2=Go to High Clamp 3=Go to Fault Value

1734-OE2C

2 Channel Analog Current Output

Configuration Data	Data Type	Default Value	Valid Data Values
Idle Mode Channel 1	SINT	1	0=Hold Last State 1=Go to Low Clamp 2=Go to High Clamp 3=Go to Fault Value
Limit Alarm Latch Channel 1	SINT	0	0=No Latching 1=Alarms Latch
Alarm Disable Channel 1	SINT	0	0=Alarms Enabled 1=Alarms Disabled

Input Data	Data Type	Default Value	Valid Data Values
Status Byte Channel 0	SINT	0	Bit 0 Fault Bit 1 Calibration Bit 2 LowAlarm Bit 3 HighAlarm
Status Byte Channel 1	SINT	0	Bit 0 Fault Bit 1 Calibration Bit 2 LowAlarm Bit 3 HighAlarm

Output Data	Data Type	Default Value	Valid Data Values
Data Channel 0	INT	0	-32,768 to 32,767
Data Channel 1	INT	0	-32,768 to 32,767

1734-OE2V

2 Channel Analog Voltage Output

Configuration Data	Data Type	Default Value	Valid Data Values
Fault Value Channel 0	INT	0	-32,768 to 32,767
Program Value Channel 0	INT	0	-32,768 to 32,767
Low Engineering Channel 0	INT	0	-32,768 to 32,767
High Engineering Channel 0	INT	10,000	-32,768 to 32,767
Low Limit Channel 0	INT	-32,768	-32,768 to 32,767
High Limit Channel 0	INT	32,767	-32,768 to 32,767
Range Type Channel 0	SINT	1	1=0 to 10V 3=-10 to +10V
Fault Mode Channel 0	SINT	1	0=Hold Last State 1=Go to Low Clamp 2=Go to High Clamp 3=Go to Fault Value
Idle Mode Channel 0	SINT	1	0=Hold Last State 1=Go to Low Clamp 2=Go to High Clamp 3=Go to Fault Value
Limit Alarm Latch Channel 0	SINT	0	0=No Latching 1=Alarms Latch
Alarm Disable Channel 0	SINT	0	0=Alarms Enabled 1=Alarms Disabled
Fault Value Channel 1	INT	0	-32,768 to 32,767
Program Value Channel 1	INT	0	-32,768 to 32,767
Low Engineering Channel 1	INT	0	-32,768 to 32,767
High Engineering Channel 1	INT	10,000	-32,768 to 32,767
Low Limit Channel 1	INT	-32,768	-32,768 to 32,767
High Limit Channel 1	INT	32,767	-32,768 to 32,767
Range Type Channel 1	SINT	1	1=0 to 10V 3=-10 to +10V
Fault Mode Channel 1	SINT	1	0=Hold Last State 1=Go to Low Clamp 2=Go to High Clamp 3=Go to Fault Value
Idle Mode Channel 1	SINT	1	0=Hold Last State 1=Go to Low Clamp 2=Go to High Clamp 3=Go to Fault Value

1734-OE2V

2 Channel Analog Voltage Output

Configuration Data	Data Type	Default Value	Valid Data Values
Limit Alarm Latch Channel 1	SINT	0	0=No Latching 1=Alarms Latch
Alarm Disable Channel 1	SINT	0	0=Alarms Enabled 1=Alarms Disabled

Input Data	Data Type	Default Value	Valid Data Values
Status Byte Channel 0	SINT	0	Bit 0 Fault Bit 1 Calibration Bit 2 LowAlarm Bit 3 HighAlarm
Status Byte Channel 1	SINT	0	Bit 0 Fault Bit 1 Calibration Bit 2 LowAlarm Bit 3 HighAlarm

Output Data	Data Type	Default Value	Valid Data Values
Data Channel 0	INT	0	-32,768 to 32,767
Data Channel 1	INT	0	-32,768 to 32,767

Specialty I/O

1734-VHSC24

1 Channel 15-24V DC Very High Speed Counter

1734-VHSC5

1 Channel 5V DC Very High Speed Counter

Configuration Data	Data Type	Default Value	Valid Data Values
Counter Config	SINT	0	
Config_0	BIT 0		0000=0=Counter
Config_1	BIT 1		0001=1=Encoder X1
Config_2	BIT 2		0010=2=Encoder X2
Config_3	BIT 3		0011=3=PWM
			0100=4=Encoder X4
			0101=5=Period/Rate
			0110=6=Continuous/Rate
			0111=7=Rate Measurement
			1000=8=Pulse Generator
Mode_4	BIT 4		000=Store Count Disable
Mode_5	BIT 5		001=Store/Continue
Mode_6	BIT 6		010=Store/Wait/Resume
			011=Store,Reset/Wait/Start
			100=Store,Reset/Start
Z Input	BIT 7		0=Z Input Not Inverted
			1=Z Input Is Inverted
Filter	SINT	120	
Filter_0	BIT 0	(0x78H)	0000=No Filter
Filter_1	BIT 1		0001=50 KHz
Filter_2	BIT 2		0010=5 KHz
Filter_3	BIT 3		0100=500 Hz
			1000=50 Hz
FilterA	BIT 4		0=Input A/B/Z Not Filtered
FilterB	BIT 5		1=Input A/B/Z Is Filtered
FilterZ	BIT 6		
Decimal Position	SINT	0	Counter Config 0, 1, 2, 3, 4: -128 to +127 (0 - 255) Counter Config 5, 6, & 7: -4 to +2
Time Base (in 10 ms intervals)	INT	0	Counter Config 3 & 7 only: 0-3000 ms (10 ms to 3 sec)
Gate Interval (Product of Time Base x Gate Interval must be ≤ 3000 ms)	SINT	0	Counter Config 3 & 7 only: -128 to +127 (0 - 200)

1734-VHSC24

1 Channel 15-24V DC Very High Speed Counter

1734-VHSC5

1 Channel 5V DC Very High Speed Counter

Configuration Data	Data Type	Default Value	Valid Data Values
Scalar	SINT	0	Counter Config 5, 6, 8 only: -128 to +127 (0 - 255) Single Bit only: 0, 1, 2, 4, 8, 16, 32, 64, -128
Output Ties 0 Out 0 Window 1 Out 0 Window 2 Out 0 Window 3 Out 0 Window 4	SINT BIT 0 BIT 1 BIT 2 BIT 3	0	0=Output 0 Not Tied 1=Output 0 Tied to Window Counter Config 3 (PWM): Output 0 Window 1 PWM In
Output Ties 1 Out 1 Window 1 Out 1 Window 2 Out 1 Window 3 Out 1 Window 4	SINT BIT 0 BIT 1 BIT 2 BIT 3	0	0=Output 1 Not Tied 1=Output 1 Tied to Window Counter Config 3 (PWM): Output 1 Window 1 PWM In
Rollover	DINT	16,777,215	1 to 16,777,216
Preset (< Rollover)	DINT	0	0 to 16,777,215
On Value 1 Off Value 1 On Value 2 Off Value 2 On Value 3 Off Value 3 On Value 4 Off Value 4	DINT DINT DINT DINT DINT DINT DINT DINT	0 0 0 0 0 0 0 0	Counter Config 3, 5, 6, 7: 0 to 16,777,215 Counter Config 0, 1, 2, 4: 0 to Rollover Value
SS PWM Value (<0 or >9500 =Hold Last State)	INT	0	0 to 9500 (0.00% to 95.00%)
SS Counter Control SS Counter Reset SS Counter Preset SS Value Reset (Stored / Accum. Count)	SINT BIT 0 BIT 1 BIT 2	0	0=Count Unchanged 1=Count Cleared 0=Count Unchanged 1=Count Set to Preset 0=Count Unchanged 1=Count Cleared

1734-VHSC24

1 Channel 15-24V DC Very High Speed Counter

1734-VHSC5

1 Channel 5V DC Very High Speed Counter

Configuration Data	Data Type	Default Value	Valid Data Values
SS Output Control	SINT	0	
SS Out 0 Force	BIT 0		0=Output Off 1=Output Forced On
SS Out 0 En	BIT 1		0=Output Disabled 1=Output Enabled
SS Out 0 Electronic Fuse	BIT 2		0=Auto Retry 1=Latch Off
SS Out 0 Diagnostic Speed	BIT 3		0=< 8ms Response 1=50ms Response
SS Out 1 Force	BIT 4		0=Output Off 1=Output Forced On
SS Out 1 En	BIT 5		0=Output Disabled 1=Output Enabled
SS Out 1 Electronic Fuse	BIT 6		0=Auto Retry 1=Latch Off
SS Out 1 Diagnostic Speed	BIT 7		0=< 8ms Response 1=50ms Response

To enter values from +128 to +255, use these conversion formulas:

Decimal Position Note:

Desired Decimal Position Value - 256 = Entered Decimal Position Value.

Example: For a divisor of 200, $200 - 256 = -56$

Gate Interval Note:

Desired Gate Interval Value - 256 = Entered Gate Interval Value.

Example: For a Gate Interval of 200, $200 - 256 = -56$

Scalar Note:

Desired Scalar Value - 256 = Entered Scalar Value.

Example: For a Scalar of 128, $128 - 256 = -128$

1734-VHSC24**1 Channel 15-24V DC Very High Speed Counter****1734-VHSC5****1 Channel 5V DC Very High Speed Counter**

Input Data	Data Type	Default Value	Valid Data Values
Present Data	DINT	0	0 to 16,777,215
Stored Data	DINT	0	-2,147,483,648 to 2,147,483,647 (0 - 4,294,967,295)
Status	INT	0	
Zero Frequency Detected	BIT 1		0=No Fault 1=Fault Detected
Stored Data Count_2	BIT 2		
Stored Data Count_3	BIT 3		Cycles thru 0 , 1, 2, 3, 0 , Increments after update
A Input Status	BIT 4		
B Input Status	BIT 5		
Z Input Status	BIT 6		0=Input A/B/Z is Off 1=Input A/B/Z is On
Output Status_8 (Output 0)	BIT 8		
Output Status_9 (Output 1)	BIT 9		0=Output is Off 1=Output is On
Output Fault_10 (Output 0)	BIT 10		
Output Fault_11 (Output 1)	BIT 11		0=No Fault 1=Open or Over Load
Not Ready	BIT 13		0=Module Ready 1=Module Initializing
EEPROM Fault	BIT 14		0=No Fault 1=EEPROM data bad
Program Fault (incomplete / incorrect / conflict)	BIT 15		0=No Fault 1=Bad Configuration (See Program Fault Note on the next page)

Stored Data Note:

To interpret values from -2,147,483,648 to -1, use this conversion formula:

Stored Data Tag Value + 4,294,967,296 = Actual Stored Data Tag Value.

Example: For a read value of -1,794,967,296:

$-1,794,967,296 + 4,294,967,296 = 2,500,000,000$ actual value

Program Fault Note

Programming Fault Error bit - If an incomplete, incorrect, or conflicting set of configuration parameters are sent to the module, the Program Fault bit will be asserted and an error code will be placed in the Programming Error Code word (assembly 6816). The module will **not** enter a normal operational state. Bit definitions (decimal) for the error codes are:

- 10 An invalid assembly was chosen for poll consumption (0, 105 or 106 are valid).
- 9 The decimal point position is outside of the acceptable range.
- 8 Counter 0 window ON & OFF values are equal and not zero OR Counter 0 window ON & OFF value is greater than the Rollover.
- 7 A tie has been connected to an unprogrammed window.
- 6 A configuration was selected that requires the scalar and none was programmed OR Multiple scalars were selected.
- 5 The preset is out of range (Rollover).
- 4 A rollover of zero was programmed through PWM was not selected OR A rollover was programmed and PWM was selected OR Rollover is out of range (>0x01000000).
- 3 A configuration requiring a time base was selected and no gate interval was set OR Gate interval is out of range (>200) OR Product of time base and gate interval is greater than 3 seconds.
- 2 A time base was entered that is not a multiple of 10 OR Time base is out of range (>3000, i.e., 3 seconds).
- 1 ZF/BF/AF were selected and no filter was programmed OR Multiple filters were selected.
- 0 A reserved configuration/mode was programmed.

1734-VHSC24

1 Channel 15-24V DC Very High Speed Counter

1734-VHSC5

1 Channel 5V DC Very High Speed Counter

Output Data	Data Type	Default Value	Valid Data Values
PWM Value	INT	0	0 to 9500 (0.00% to 95.00%)
Counter Control	SINT	0	
Counter Reset	BIT 0	0	0=Count Unchanged 1=Count Cleared
Counter Preset	BIT 1	0	0=Count Unchanged 1=Count Set to Preset
Value Reset (Stored / Accumulated Count)	BIT 2	0	0=Count Unchanged 1=Count Cleared
Output Control	SINT	0	
Output 0 Force	BIT 0	0	0=Output Off 1=Output Forced On
Output 0 Enable	BIT 1	0	0=Output Disabled 1=Output Enabled
Output 0 Electronic Fuse	BIT 2	0	0=Auto Retry 1=Latch Off
Output 0 Diagnostic Speed	BIT 3	0	0=< 8ms Response 1=50ms Response
Output 1 Force	BIT 4	0	0=Output Off 1=Output Forced On
Output 1 Enable	BIT 5	0	0=Output Disabled 1=Output Enabled
Output 1 Electronic Fuse	BIT 6	0	0=Auto Retry 1=Latch Off
Output 1 Diagnostic Speed	BIT 7	0	0=< 8ms Response 1=50ms Response

1734-IJ

1 Channel 5V DC Encoder / Counter

1734-IK

1 Channel 15-24V DC Encoder / Counter

Configuration Data	Data Type	Default Value	Valid Data Values
Counter Config Config_0 Config_1 Config_2 Config_3 Mode_4 Mode_5 Mode_6 Z Input	SINT BIT 0 BIT 1 BIT 2 BIT 3 BIT 4 BIT 5 BIT 6 BIT 7	0	0000=0=Counter 0001=1=Encoder X1 0010=2=Encoder X2 0100=4=Encoder X4 0101=5=Period/Rate 0111=7=Rate Measurement 000=Store Count Disable 001=Store/Continue 010=Store/Wait/Resume 011=Store,Reset/Wait/Start 100=Store,Reset/Start 0=Z Input Not Inverted 1=Z Input Is Inverted
Filter Filter_0 Filter_1 Filter_2 Filter_3 FilterA FilterB FilterZ	SINT BIT 0 BIT 1 BIT 2 BIT 3 BIT 4 BIT 5 BIT 6	120 (0x78H)	0000=No Filter 0001=50 KHz 0010=5 KHz 0100=500 Hz 1000=50 Hz 0=Input A/B/Z Not Filtered 1=Input A/B/Z Is Filtered
Decimal Position	SINT	0	Counter Config 0, 1, 2, 4: -128 to +127 (0 - 255) Counter Config 5 & 7: -4 to +2
Time Base (in 10 ms intervals)	INT	0	Counter Config 7 only: 0-3000 ms (10 ms to 3 sec)
Gate Interval (Product of Time Base x Gate Interval must be ≤ 3000 ms)	SINT	0	Counter Config 7 only: -128 to +127 (0 - 200)
Scalar	SINT	0	Counter Config 5 only: -128 to +127 (0 - 255) 0, 1, 2, 4, 8, 16, 32, 64, -128
Rollover	DINT	16,777,215	1 to 16,777,216
Preset (< Rollover)	DINT	0	0 to 16,777,215

1734-IJ

1 Channel 5V DC Encoder / Counter

1734-IK

1 Channel 15-24V DC Encoder / Counter

Configuration Data	Data Type	Default Value	Valid Data Values
SS Counter Control	SINT	0	
SS Counter Reset	BIT 0		0=Count Unchanged 1=Count Cleared
SS Counter Preset	BIT 1		0=Count Unchanged 1=Count Set to Preset
SS Value Reset	BIT 2		0=Count Unchanged 1=Count Cleared

To enter values from +128 to +255, use these conversion formulas:

Decimal Position Note:

Desired Decimal Position Value - 256 = Entered Decimal Position Value.

Example: For a divisor of 200, $200 - 256 = -56$

Gate Interval Note:

Desired Gate Interval Value - 256 = Entered Gate Interval Value.

Example: For a Gate Interval of 200, $200 - 256 = -56$

Scalar Note:

Desired Scalar Value - 256 = Entered Scalar Value.

Example: For a Scalar of 128, $128 - 256 = -128$

1734-IJ

1 Channel 5V DC Encoder / Counter

1734-IK

1 Channel 15-24V DC Encoder / Counter

Input Data	Data Type	Default Value	Valid Data Values
Present Data	DINT	0	0 to 16,777,215
Stored Data	DINT	0	-2,147,483,648 to 2,147,483,647 (0 - 4,294,967,295)
Status Zero Frequency Detected	INT BIT 1	0	0=No Fault 1=Fault Detected
Stored Data Count_2	BIT 2		Cycles thru 0 , 1, 2, 3, 0 ,
Stored Data Count_3	BIT 3		Increments after update
A Input Status B Input Status Z Input Status	BIT 4 BIT 5 BIT 6		0=Input A/B/Z is Off 1=Input A/B/Z is On
Not Ready	BIT 13		0=Module Ready 1=Module Initializing
EEPROM Fault	BIT 14		0=No Fault 1=EEPROM data bad
Program Fault (incomplete / incorrect / conflict)	BIT 15		0=No Fault 1=Bad Configuration (See Program Fault Note on the next page)

Stored Data Note:

To interpret values from -2,147,483,648 to -1, use this conversion formula:

Stored Data Tag Value + 4,294,967,296 = Actual Stored Data Tag Value.

Example: For a read value of -1,794,967,296: -1,794,967,296 +

4,294,967,296 = 2,500,000,000 actual value

Program Fault Note

Programming Fault Error bit - If an incomplete, incorrect, or conflicting set of configuration parameters are sent to the module, the Program Fault bit will be asserted and an error code will be placed in the Programming Error Code word (assembly 6816). The module will **not** enter a normal operational state. Bit definitions (decimal) for the error codes are:

- 10 An invalid assembly was chosen for poll consumption (0, 105 or 106 are valid).
- 9 The decimal point position is outside of the acceptable range.
- 8 Counter 0 window ON & OFF values are equal and not zero OR Counter 0 window ON & OFF value is greater than the Rollover.
- 7 A tie has been connected to an unprogrammed window.
- 6 A configuration was selected that requires the scalar and none was programmed OR Multiple scalars were selected.
- 5 The preset is out of range (Rollover).
- 4 A rollover of zero was programmed through PWM was not selected OR A rollover was programmed and PWM was selected OR Rollover is out of range (>0x01000000).
- 3 A configuration requiring a time base was selected and no gate interval was set OR Gate interval is out of range (>200) OR Product of time base and gate interval is greater than 3 seconds.
- 2 A time base was entered that is not a multiple of 10 OR Time base is out of range (>3000, i.e., 3 seconds).
- 1 ZF/BF/AF were selected and no filter was programmed OR Multiple filters were selected.
- 0 A reserved configuration/mode was programmed.

1734-IJ

1 Channel 5V DC Encoder / Counter

1734-IK

1 Channel 15-24V DC Encoder / Counter

Output Data	Data Type	Default Value	Valid Data Values
Counter Control Counter Reset	SINT BIT 0	0 0	0=Count Unchanged 1=Count Cleared
Counter Preset	BIT 1	0	0=Count Unchanged 1=Count Set to Preset
Value Reset (Stored / Accumulated Count)	BIT 2	0	0=Count Unchanged 1=Count Cleared

1734-SSI

1 Channel Synchronous Serial Interface

Configuration Data	Data Type	Default Value	Valid Data Values
Run	SINT	1	0=Module Not Running 1=Module Is Running
Gray Binary	SINT	1	0=Binary Code 1=Gray Code
Word Length	SINT	13	2 to 31
Data Speed	SINT	5	5=125K Baud 6=250K Baud 7=500K Baud 8=1M Baud 9=2M Baud
G2B Convert (Gray to Binary)	SINT	0	0=No Convert 1=Convert
Standardization (Divide / Shift using Trailing)	SINT	0	0=No Standardization 1=Apply Standardization
SSI Word Delay Time	INT	64	-32,768 to 32,767 μ s (16 - 65,535)
Trailing (No. of Trailing Bits)	SINT	0	0 to 16
Input Latch Control InputLatch_0 InputLatch_1	SINT BIT 0 BIT 1	0	00=Off 01=Falling Edge of Input 10=Rising Edge of Input 11=Both Edges of Input
Sensor Resolution (Positions per Rev. or Stroke)	INT	1	-32,768 to 32,767 counts (1 - 65,535)
Sensor Cycle (Total Revolutions or Strokes)	INT	1	-32,768 to 32,767 counts (1 - 65,535)
Compare 0 Value	DINT	0	-2,147,483,648 to 2,147,483,647 (0 - 4,294,967,295)
Compare 1 Value	DINT	0	-2,147,483,648 to 2,147,483,647 (0 - 4,294,967,295)
Compare 0 Control Compare0_0 Compare0_1	SINT BIT 0 BIT 1	0	00=Off 01=Up Direction 10=Down Direction 11=Both Directions
Compare 1 Control; Compare1_0 Compare1_1	SINT BIT 0 BIT 1	0	00=Off 01=Up Direction 10=Down Direction 11=Both Directions

SSI Word Delay Time Note:

To enter Delay values from +32,768 to +65,535 μ s, use this conversion formula:

$$\text{Desired Delay Value (in } \mu\text{s)} - 65536 = \text{Entered Delay Value (in } \mu\text{s)}.$$

$$\text{Example: For a 40ms delay time, } 40000 - 65536 = -25536$$

Sensor Resolution Note:

To enter Resolution values from +32,768 to +65,535 μ s, use this conversion formula:

$$\text{Desired Resolution Value} - 65536 = \text{Entered Resolution Value.}$$

$$\text{Example: For a 40,000 count sensor, } 40000 - 65536 = -25536$$

Sensor Cycle Note:

To enter Cycle values from +32,768 to +65,535, use this conversion formula:

$$\text{Desired Cycle Value} - 65536 = \text{Entered Cycle Value.}$$

$$\text{Example: For 50,000 sensor cycle rotations, } 50000 - 65536 = -15536$$

Compare 0,1 Value Note:

To enter Compare values from +2,147,483,647 to +4,294,967,295, use this conversion formula:

$$\text{Desired Compare Value} - 4,294,967,296 = \text{Entered Compare Value.}$$

$$\text{Example: For a 3,000,000,000 compare value,}$$

$$3,000,000,000 - 4,294,967,296 = -1,294,967,296$$

1734-SSI

1 Channel Synchronous Serial Interface

Input Data	Data Type	Default Value	Valid Data Values
Present Data	DINT	0	-2,147,483,648 to 2,147,483,647 (0 - 4,294,967,295)
Latched Data	DINT	0	-2,147,483,648 to 2,147,483,647 (0 - 4,294,967,295)
Status Input Status	INT BIT 0	0	0=Input is Off 1=Input is On
Run	BIT 1		0=Module is not Running 1=Module is Running
Decreasing Count	BIT 2		0=Count not Decreasing 1=Count is Decreasing
Increasing Count	BIT 3		0=Count not Increasing 1=Count is Increasing
Compare0 Reached Compare1 Reached	BIT 4 BIT 5		0=Compare not Reached 1=Compare was Reached
Compare0 Status Compare1 Status	BIT 6 BIT 7		0=Compare Off 1=Compare On
Power Fault	BIT 8		0=No 24Vdc Power Fault 1=24Vdc Power Fault
Configuration Fault	BIT 9		0=No FPGA Config Fault 1=FPGA Config data bad
Communication Fault	BIT 10		0=No FPGA Comm Fault 1=FPGA Comm Fault
Input Data Fault	BIT 11		0=No Input Data Fault 1=Input Power Fault (short)
Data Latched	BIT 12		0=Input Data Not Latched 1=Input Data Latched

Present / Latched Data Note:

To interpret values from -2,147,483,648 to -1, use this conversion formula:

Stored Data Tag Value + 4,294,967,296 = Actual Stored Data Tag Value.

Example: For a read value of -1,794,967,296:

$-1,794,967,296 + 4,294,967,296 = 2,500,000,000$ actual value

1734-SSI

1 Channel Synchronous Serial Interface

Output Data	Data Type	Default Value	Valid Data Values
Control	SINT	0	
Latch Acknowledge	BIT 0	0	0=Latch Not Cleared 1=Latch Cleared
Compare 0 Acknowledge	BIT 1	0	0=Compare0 Not Reset 1=Compare0 Reset
Compare 1 Acknowledge	BIT 2	0	0=Compare1 Not Reset 1=Compare1 Reset
Compare 0 Select	BIT 3	0	0=Compare0 Not Selected 1=Compare0 Selected
Compare 1 Select	BIT 4	0	0=Compare1 Not Selected 1=Compare1 Selected

1734-232ASC

1 Channel ASCII Interface Module

Configuration Data	Data Type	Default Value	Valid Data Values
Serial Character Format (ASCII Format: Data Bits / Parity / Stop)	SINT	0	0=7N2 1=7E1 2=7O1 3=8N1 4=8N2 5=8E1 6=8O1 7=7E2 8=7O2
Serial Comm Speed (Baud Rate of the Serial Port)	SINT	0	0=9600 1=1200 2=2400 3=4800 4=19.2K 5=38.4K
Max Receive Characters	SINT	20	-128 to +127 (0 - 128)
Receive Start Delimiter Mode	SINT	0	0=No Start Delimiter 1=Exclude Start Delimiter 2=Include Start Delimiter
Receive Start Delimiter Character	SINT	58 (0x3A)	Any Valid ASCII Character (Default is Colon [:])
Receive Record End Mode	SINT	2	0=No End Delimiter 1=Exclude End Delimiter 2=Include End Delimiter
Receive End Delimiter	SINT	13 (0x0d)	Any Valid ASCII Character (Default is Carr. Return)
Receive String Data Type	SINT	1	0=Array 1=Short String 2=String
Pad Mode	SINT	1	0=Pad Mode Disabled 1=Pad Mode Enabled
Pad Character	SINT	0 (0x00)	Any Valid ASCII Character (Default is NULL)
Receive Swap Mode	SINT	0	0=Disabled 1=16-bit Swap Enabled 2=24-bit Swap Enabled 3=32-bit Swap Enabled
DeviceNet Handshake Mode	SINT	1	0=Master/Slave handshake 1=Produce Immediate
Max Transmit Characters	SINT	20	-128 to +127 (0 - 128)

1734-232ASC

1 Channel ASCII Interface Module

Configuration Data	Data Type	Default Value	Valid Data Values
Transmit End Delimiter Mode	SINT	2	0=No End Delimiter 1=Exclude End Delimiter 2=Include End Delimiter
Transmit End Delimiter Character	SINT	13 (0x0d)	Any Valid ASCII Character (Default is Carr. Return)
Consume String Data Type	SINT	1	0=Array 1=Short String 2=String
Transmit Swap Mode	SINT	0	0=Disabled 1=16-bit Swap Enabled 2=24-bit Swap Enabled 3=32-bit Swap Enabled
DeviceNet Record Header Mode	SINT	0	0=Transmit Handshake 1=Transmit Immediate

Transmit Data / Receive Data / Delimiter / Pad Character Note:

Note that “7 data bits” allows ASCII Character data values of 0 - 127, which RSLogix 5000 does support in the signed Short Integer data type SINT (-128 to +127 range).

Note that “8 data bits” allows ASCII Character data values of 0 - 255. To enter values from +128 to +255, use this conversion formula:

Desired Decimal Value - 256 = Entered Decimal Value.

Example: For an ASCII Character value of 128, $128 - 256 = -128$

1734-232ASC

1 Channel ASCII Interface Module

Input Data	Data Type	Default Value	Valid Data Values
Receive Record Number	SINT	0	-128 to +127 (0 - 255)
Status TX FIFO Overflow	SINT BIT 0	0	0=No Error 1=TX FIFO Overflow Error
RX FIFO Overflow	BIT 1		0=No Error 1=RX FIFO Overflow Error
RX Parity Error	BIT 2		0=No Error 1=RX Parity Overflow Error
Handshake Error	BIT 6		0=No Error 1=Handshake Error
New Data Flag	BIT 7		0=No New Data 1=New Data Present
Length_Lo	SINT	20	-128 to +127 (0 - 128)
Length_Hi	SINT	0	0 or 1
Data[128]	SINT	0	Received ASCII Message

Output Data	Data Type	Default Value	Valid Data Values
Transmit Record Number	SINT	0	-128 to +127 (0 - 255)
Receive Record Number	SINT	0	-128 to +127 (0 - 255)
Status TX FIFO Overflow	SINT BIT 0	0	0=No Error 1=TX FIFO Overflow Error
RX FIFO Overflow	BIT 1		0=No Error 1=RX FIFO Overflow Error
RX Parity Error	BIT 2		0=No Error 1=RX Parity Overflow Error
Handshake Error	BIT 6		0=No Error 1=Handshake Error
New Data Flag	BIT 7		0=No New Data 1=New Data Present
Length_Lo	SINT	20	-128 to +127 (0 - 128)
Length_Hi	SINT	0	0 or 1
Data[128]	SINT	0	Transmitted ASCII Message

Transmit Record Number / Receive Record Number / Length_Lo Note:

Note that “7 data bits” allows Transmit / Receive record Number of Length_Lo values of 0 - 127, which RSLogix 5000 does support in the signed Short Integer data type SINT (-128 to +127 range).

Note that “8 data bits” allows Transmit / Receive record Number of Length_Lo values of 0 - 255.

To enter values from +128 to +255, use this conversion formula:

Desired Decimal Value - 256 = Entered Decimal Value.

Example: For a Transmit / Receive record Number of Length_Lo value of 128, $128 - 256 = -128$

Notes:

1734-AENT Quick Start

What's In This Appendix?

In this quick start, you will learn how to use the 1734-AENT with a ControlLogix processor for EtherNet/IP.

IMPORTANT

This quick start contains a simple set of steps and reminders that will help you avoid errors when you are configuring your POINT I/O system for EtherNet/IP.

ATTENTION

You must use Series C POINT I/O modules with the 1734-AENT adapter. Series A or B POINT I/O modules will not work with this adapter.

Necessary Pre-requisites

Before you began this quick start, make sure the following conditions are in place.

- The ControlLogix Controller and the RSLogix software version must be version 11 or higher.
- The 1756-ENBT module must be version 2.3 or higher.
- The 1734 POINT I/O modules must be Series C (except for the 1734-232ASC modules, which can be Series A).
- The recommended RPIs are being used: Discrete = 10 ms or higher, Analog and Specialty = 50 ms or higher.
- The 1734-AENT POINT I/O adapter is a child to a local 1756-ENBT module.

Configure the 1734-AENT POINT I/O Adapter

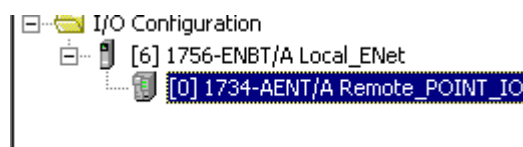
In the 1734-AENT's module Properties window, perform the following steps.

1. Complete the **Name** field.
2. Enter the following address into the **IP Address** field: **192.168.1.42**, (you will only be setting the last digit, because the first three digits are set for you) as set by the push wheel switches on the adapter. (**Note:** The push wheel switches should be set to 042.)
3. From the **Comm Format** menu, choose **None** (If you do **not** want a rack optimized connection or choose **Rack Optimization** if you want a rack optimized connection).
4. For the **Electronic Keying** field select **Compatible Module**.
5. Enter the **Chassis Size**.

Note: Regarding chassis size, the POINT I/O adapter itself takes up a count in the chassis. The default chassis size for the POINT I/O is 1, which covers the adapter only and allows for no I/O. Therefore, in order to configure your PointBus modules, you must set the chassis size to the physical amount of your I/O modules plus one for the adapter, otherwise you will get an error (i.e., if you have six modules in the chassis, chassis size has to be set to 6+1=7.)

6. Enter the **Slot**. For the adapter itself, the slot number is always 0 and cannot be modified.
7. Click on **Finish**.

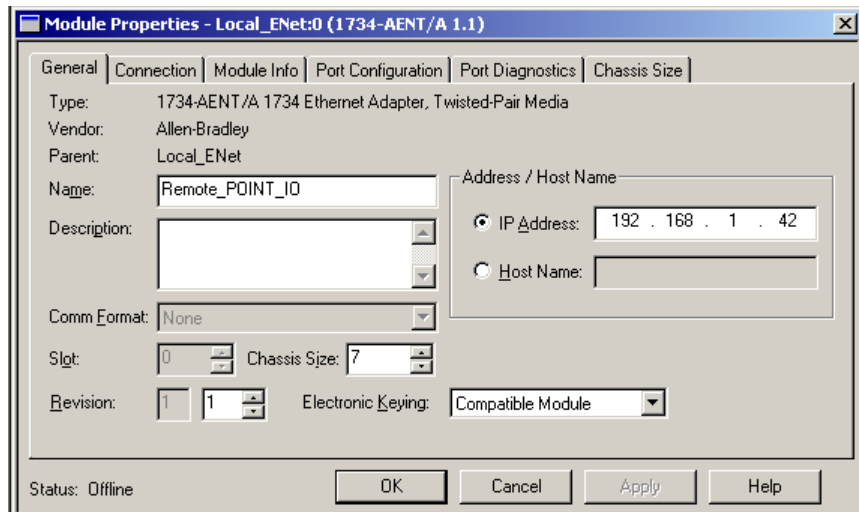
Your I/O Configuration tree now looks similar to the following:



Enter Adapter Properties

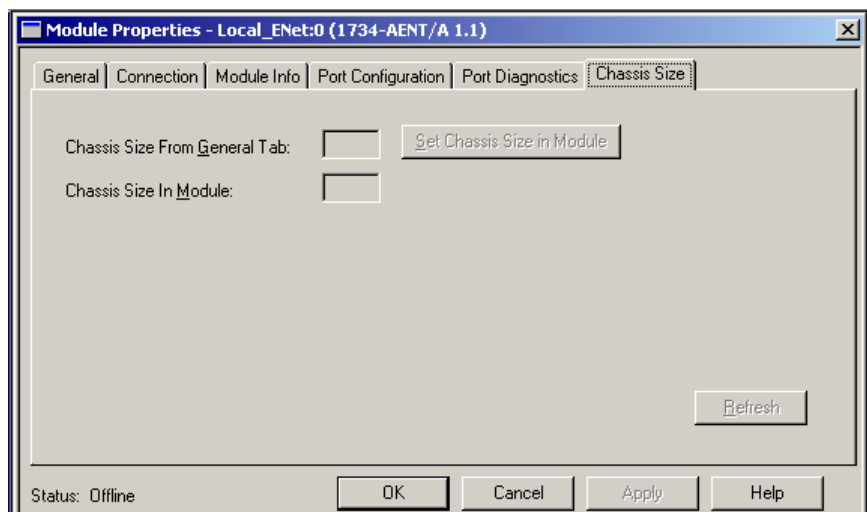
1. Right click on the 1734-AENT adapter and select **Properties**.

The following window displays:



2. Click on the **Chassis Size** tab.

You will notice that the data under this tab is grayed out while offline. The **Chassis Size** tab is used to send the module size from the **General** tab to the module itself once you are online. Otherwise, you will get an error. We will explore this later. For now, click on **OK** to close this window:



3. Right click on the POINT I/O adapter under I/O Configuration to add a new module.
4. Select the module from the list and click on **OK**.

5. In the **Module Properties** window, enter the following information:
 - a. **Name**
 - b. **Slot**
 - c. **Comm Format**
 - d. **Electronic Keying**, choose **Compatible Module** to verify the major revision. C, because only Series C modules support EtherNet/IP.
 - e. Click on **Next** on the bottom of the window.
 - f. Set the **RPI** to **10 ms** for discrete and **50 ms** for analog or specialty.
6. Click on **Finish**.

Add Another Module Under the Adapter

1. Right click on the POINT I/O adapter under I/O configuration to add a new module.

Your second module is in **slot 2**.

2. Select the module from the **Module Type** list and click on **OK**.
3. In the **Module Properties** window, enter the following information:
 - a. **Name**
 - b. **Slot**
 - c. **Comm Format**
 - d. **Electronic Keying**, choose **Compatible Module**.
 - e. Click on **Next**.
 - f. Set the **RPI** to **10 ms** for discrete and **50 ms** for analog or specialty.
4. Click on **Finish**.

Continue to add modules to the adapter in this fashion until all of the POINT I/O modules connected to the 1734-AENT have been added to the I/O Configuration tree.

Configure 1734 POINT I/O Modules

You should configure your 1734 POINT I/O modules via the Controller Tags database. To do this, following the steps below.

1. Double click on the Controller Tags in the project window.

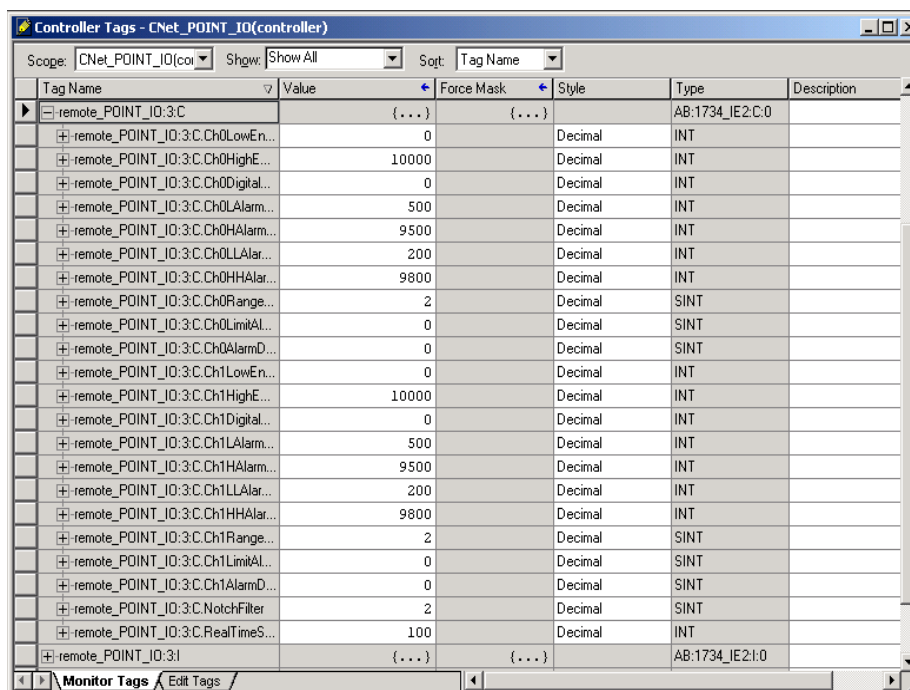
Look at the bottom of the screen to make sure you are in the **Monitor Tags** tab.

2. Click on the module you would like to configure.

We are going to assume there is an analog input module 1734-IE2V, which resides in slot 3.

3. Click on the configuration tag `remote_POINT_IO:3:C`.

From here you can set the entire module's configuration, alarms, etc.



Tag Name	Value	Force Mask	Style	Type	Description
remote_POINT_IO:3:C	{...}	{...}		AB:1734_IE2:C:0	
remote_POINT_IO:3:C.Ch0LowEn...	0		Decimal	INT	
remote_POINT_IO:3:C.Ch0HighE...	10000		Decimal	INT	
remote_POINT_IO:3:C.Ch0Digital...	0		Decimal	INT	
remote_POINT_IO:3:C.Ch0LAlarm...	500		Decimal	INT	
remote_POINT_IO:3:C.Ch0HAlarm...	9500		Decimal	INT	
remote_POINT_IO:3:C.Ch0LLAlarm...	200		Decimal	INT	
remote_POINT_IO:3:C.Ch0HHAlarm...	9800		Decimal	INT	
remote_POINT_IO:3:C.Ch0Range...	2		Decimal	SINT	
remote_POINT_IO:3:C.Ch0LimitAl...	0		Decimal	SINT	
remote_POINT_IO:3:C.Ch0AlarmD...	0		Decimal	SINT	
remote_POINT_IO:3:C.Ch1LowEn...	0		Decimal	INT	
remote_POINT_IO:3:C.Ch1HighE...	10000		Decimal	INT	
remote_POINT_IO:3:C.Ch1Digital...	0		Decimal	INT	
remote_POINT_IO:3:C.Ch1LAlarm...	500		Decimal	INT	
remote_POINT_IO:3:C.Ch1HAlarm...	9500		Decimal	INT	
remote_POINT_IO:3:C.Ch1LLAlarm...	200		Decimal	INT	
remote_POINT_IO:3:C.Ch1HHAlarm...	9800		Decimal	INT	
remote_POINT_IO:3:C.Ch1Range...	2		Decimal	SINT	
remote_POINT_IO:3:C.Ch1LimitAl...	0		Decimal	SINT	
remote_POINT_IO:3:C.Ch1AlarmD...	0		Decimal	SINT	
remote_POINT_IO:3:C.NotchFilter	2		Decimal	SINT	
remote_POINT_IO:3:C.RealTimeS...	100		Decimal	INT	
remote_POINT_IO:3:I	{...}	{...}		AB:1734_IE2:I:0	

In this configuration window, you enter the values that would correspond to the desired range. According to Appendix C of this user manual, the range type default value for a 1734-IE2V module is 2, which is equal to 0-10VDC.

4. Click on the configuration tag for the module in slot 4, `remote_POINT_IO:4:C`.

5. Check the value in the tag `remote_POINT_IO:4:C.Ch0RangeType`.

It is set to 1, which is one of the default values. If you look to Appendix C of this user manual, you will see that there are two settings that this module will support:

- 1 = 0 to 10VDC
- 3 = -10 to +10VDC

Tag Name	Value	Force Mask	Style	Type	Description
remote_POINT_IO:4:C	{...}	{...}		AB:1734_OE2:C:0	
remote_POINT_IO:4:C.Ch0FaultV...	0		Decimal	INT	
remote_POINT_IO:4:C.Ch0ProgV...	0		Decimal	INT	
remote_POINT_IO:4:C.Ch0LowEn...	0		Decimal	INT	
remote_POINT_IO:4:C.Ch0HighE...	10000		Decimal	INT	
remote_POINT_IO:4:C.Ch0LowLimit	-32768		Decimal	INT	
remote_POINT_IO:4:C.Ch0HighLimit	32767		Decimal	INT	
remote_POINT_IO:4:C.Ch0Range...	1		Decimal	SINT	
remote_POINT_IO:4:C.Ch0FaultM...	1		Decimal	SINT	
remote_POINT_IO:4:C.Ch0ProgM...	1		Decimal	SINT	
remote_POINT_IO:4:C.Ch0LimitAl...	0		Decimal	SINT	
remote_POINT_IO:4:C.Ch0AlarmD...	0		Decimal	SINT	
remote_POINT_IO:4:C.Ch1FaultV...	0		Decimal	INT	
remote_POINT_IO:4:C.Ch1ProgV...	0		Decimal	INT	
remote_POINT_IO:4:C.Ch1LowEn...	0		Decimal	INT	
remote_POINT_IO:4:C.Ch1HighE...	10000		Decimal	INT	
remote_POINT_IO:4:C.Ch1LowLimit	-32768		Decimal	INT	
remote_POINT_IO:4:C.Ch1HighLimit	32767		Decimal	INT	
remote_POINT_IO:4:C.Ch1Range...	1		Decimal	SINT	
remote_POINT_IO:4:C.Ch1FaultM...	1		Decimal	SINT	
remote_POINT_IO:4:C.Ch1ProgM...	1		Decimal	SINT	
remote_POINT_IO:4:C.Ch1LimitAl...	0		Decimal	SINT	
remote_POINT_IO:4:C.Ch1AlarmD...	0		Decimal	SINT	
remote_POINT_IO:4:I	{...}	{...}		AB:1734_OE2:I:0	

Please note the following:

- The controller only sends the configuration data when connection is being established.
- Should you need to modify any of the tag values once you change the tag, you will need to access the updated information and download it into the module. There are three ways to download the updated configuration information into the module.
 - Ideally, you would enter the correct code number in the **Range Type** field at the same time that you add the I/O to the I/O Configuration tree. You would then download later.

- However, if you have downloaded the offline configuration into the module and then realize that you must modify any of the module's configuration parameters, then the preferred way to make these changes online is to go to the **Module Connection** tab and inhibit the module, apply the changes, and then uninhibit the module. Doing this will break the connection, causing the configuration information to be downloaded right after the connection is made.

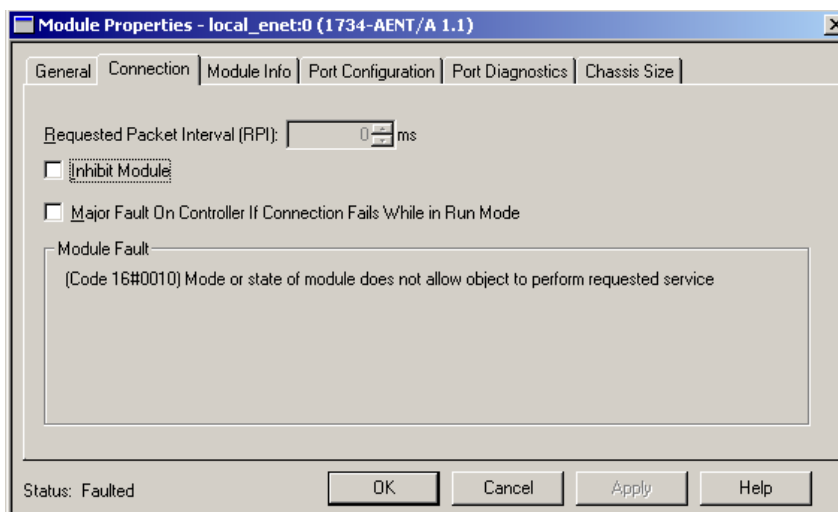
IMPORTANT

Switching the processor from Program to Run mode does not change the module connection status and does not re-send module configuration data!

It is highly recommended that the inhibit/uninhibit process be used and that power cycling be avoided.

6. Right click on the 1734-AENT adapter and select **Properties**.

7. Click on **Connection Tab**. You will see the following message:



The module is faulted because even though you have set up the 1734-AENT's POINT I/O chassis size to the actual number of the modules plus the adapter, the adapter still remembers the size of 1 (the factory default value) until you go and reset this size manually. This option is available only online.

8. Click on the **Chassis Size** tab.

9. Click on the **Set Chassis Size in Module** button and set the chassis size in the adapter. (Remember to inhibit and uninhibit the module for this to take effect.)

Now you can put your processor in Run mode and the connection should be successful.

IMPORTANT

The information found in the Appendix C of this user manual is also available in the RSLogix 5000 on-line help file. Use the Help file search function under the 1734 catalog number that you are configuring and select the **Module Defined Data Types** option. All of the configurable parameters and associated values will display. Under the **Valid Data Values** column in Appendix C of this manual, where the parameter values are coding their definitions will be listed and identified.


Configure an Ethernet Driver in RSLinx

To configure an Ethernet driver in RSLinx, you must launch RSLinx software.

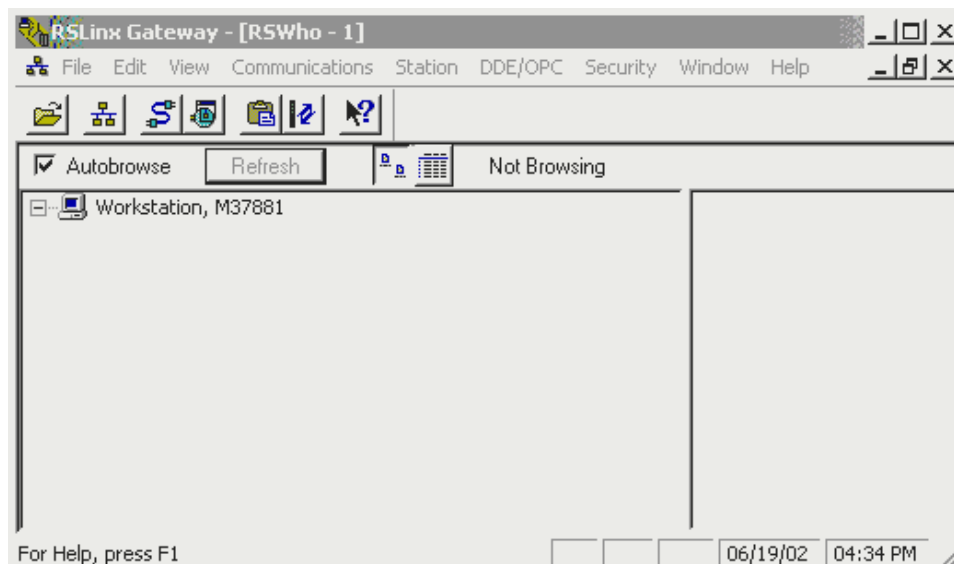
Launch RSLinx Software

Launching the RSLinx software will enable you to configure the driver you will use to communicate with the a ControlLogix processor.



1. Double click on the **RSLinx** icon on the Desktop to launch RSLinx software.
2. Click on the **RSWho** icon .

The Rockwell Software RSLinx Gateway - [RSWho - 1] screen appears.



TIP

The RSWho screen is actually RSLinx's network browser interface, which lets you view all of your active network connections.

The left pane of this display is the Tree Control, which shows networks and devices in a hierarchical view. When a network or device is collapsed, as indicated by the + sign, you can click on the + sign or double click on the network or device icon to expand the view and begin browsing. When a network or device is expanded, as indicated by the - sign, you can click on the - sign or double click on the network or device icon to collapse the view. The right pane of the RSWho display is the List Control, which is a graphical representation of all of the devices present on the network.

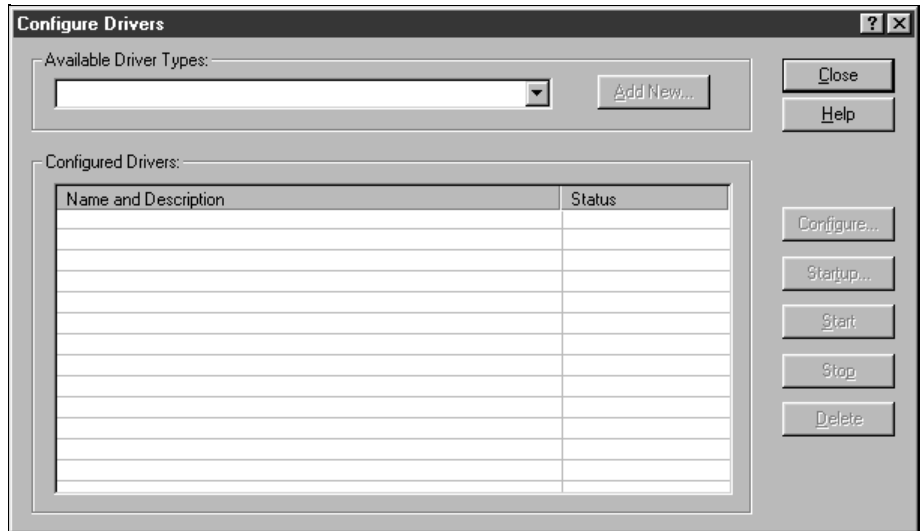
TIP


If there is a communication status error with a device (e.g., when a recognized device is inadvertently unplugged), that device appears with a red X, indicating that RSWho previously recognized it, but now it can not. You can choose to remove the device from the RSWho display, or you can choose to correct the communication error.

Adding the AB_ETHIP-1 (EtherNet/IP) Driver

1. From the **Communications** menu, choose **Configure Drivers**.

The **Configure Drivers** dialog appears.



2. From the **Available Driver Types** pull-down menu, choose **EtherNet/IP Driver**.
3. Click on the **Add New** button.
4. Click on **OK** to accept the default name (AB_ETHIP-1).
5. Ensure that the radio button for **Browse Local Subnet** is enabled.
6. Click on **OK**.
7. Verify that the driver you just configured is running and click on the **Close** button to exit the **Configure Drivers** window.
8. Click on the **X** in the upper right corner of the **RSWho** window to stop **RSWho**.
9. Click on the minimize icon  in the upper right corner of the **RSLinux** window to minimize **RSLinux**.

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